

100	105	110	115	
gtg gcc aag acc tct	gct gca cag gct atc	cat cca gga tgc ggt ttt		559
Val Ala Lys Thr Ser	Ala Ala Gln Ala Ile	His Pro Gly Cys Gly Phe		
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Leu Ser Glu Asn Met	Glu Phe Ala Glu Leu	Cys Lys Gln Glu Gly Ile		
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Ile Phe Ile Gly Pro	Pro Pro Ser Ala Ile	Arg Asp Met Gly Ile Lys		
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Ser Thr Ser Lys Ser	Ile Met Ala Ala Ala	Gly Val Pro Val Val Glu		
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Gly Tyr His Gly Glu	Asp Gln Ser Asp Gln	Cys Leu Lys Glu His Ala		
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Arg Arg Ile Gly Tyr	Pro Val Met Ile Lys	Ala Val Arg Gly Gly Gly		
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Gly Lys Gly Met Arg	Ile Val Arg Ser Glu	Gln Glu Phe Gln Glu Gln		
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Leu Glu Ser Ala Arg	Arg Glu Ala Lys Lys	Ser Phe Asn Asp Asp Ala		
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Met Leu Ile Glu Lys	Phe Val Asp Thr Pro	Arg His Val Glu Val Gln		
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Val Phe Gly Asp His	His Gly Asn Ala Val	Tyr Leu Phe Glu Arg Asp		
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Cys Ser Val Gln Arg	Arg His Gln Lys Ile	Ile Glu Glu Ala Pro Ala		
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Pro Gly Ile Lys Ser	Glu Val Arg Lys Lys	Leu Gly Glu Ala Ala Val		
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Arg Ala Ala Lys Ala	Val Asn Tyr Val Gly	Ala Gly Thr Val Glu Phe		
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Ile Met Asp Ser Lys	His Asn Phe Cys Phe	Met Glu Met Asn Thr Arg		
324	329	334	339	

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Ala	Glu	Asp	Pro	Ser	Asn	Asn	Phe	Met	Pro	Val	Ala	Gly	Pro	Leu	Val	
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Val	Arg	Gln	Gly	Asp	Glu	Val	Ser	Val	His	Tyr	Asp	Pro	Met	Ile	Ala	
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cgg	aag	gct	gca	gcc	aaa	gag	tct	tta	tgc	cag	gca	gcc	ctg	ggt	ctc	1711
Arg	Lys	Ala	Ala	Ala	Lys	Glu	Ser	Leu	Cys	Gln	Ala	Ala	Leu	Gly	Leu	
500					505					510					515	
atc	ctc	aag	gag	aaa	gcc	atg	acc	gac	act	ttc	act	ctt	cag	gca	cat	1759
Ile	Leu	Lys	Glu	Lys	Ala	Met	Thr	Asp	Thr	Phe	Thr	Leu	Gln	Ala	His	
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Asp	Gln	Phe	Ser	Pro	Phe	Ser	Ser	Ser	Ser	Gly	Arg	Arg	Leu	Asn	Ile	
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Ser	Tyr	Thr	Arg	Asn	Met	Thr	Leu	Lys	Asp	Gly	Lys	Asn	Asn	Val	Ala	
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Case	Age	Sex	Occupation	Duration of illness	Site of lesion	Pathological changes	Microscopic findings	Diagnosis
1	25	M	Student	1 year	Right eye	Choroid	Choroidal melanoma	Choroidal melanoma
2	35	F	Housewife	6 months	Left eye	Retina	Retinal melanoma	Retinal melanoma
3	45	M	Teacher	3 years	Right eye	Choroid	Choroidal melanoma	Choroidal melanoma
4	55	F	Retiree	1 year	Left eye	Retina	Retinal melanoma	Retinal melanoma
5	65	M	Farmer	2 years	Right eye	Choroid	Choroidal melanoma	Choroidal melanoma
6	75	F	Housewife	1 year	Left eye	Retina	Retinal melanoma	Retinal melanoma
7	85	M	Retiree	6 months	Right eye	Choroid	Choroidal melanoma	Choroidal melanoma
8	95	F	Housewife	3 months	Left eye	Retina	Retinal melanoma	Retinal melanoma

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Gly Gln Ile Arg Leu Trp Arg Asn Phe Tyr Asp Asp Lys Lys Tyr Thr
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Phe Cys Thr Ser His Ser Asp Asn Lys Ile Ile Ile Ile His Arg Asn	
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Leu Glu Ala Ser Ala Val Ile Gln Gly Leu Val Lys Asp Arg Ser Ile	
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Phe Thr Gly Leu Met Ile Asp Pro Arg Thr Lys Ala Leu Val Leu Asn	
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Gly Lys Pro Gly His Leu Gln Phe Tyr Ser Leu Gln Ser Asp Lys Gln	
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Trp Leu Ala Thr Val Glu Gln Arg Gln Glu Lys Glu Thr Glu Leu Glu	
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Leu Gln Met Lys Leu Trp Met Tyr Asn Lys Lys Thr Gln Gly Phe Ile	
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Cys Phe Cys Asn Ala Glu Lys Ser Glu Gln Pro Thr Leu Val Thr Ala	
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Ile Tyr Lys Lys Ala Val Gly Trp Thr Cys Asp Phe Val Gly Ser Tyr	
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His Lys Tyr Gln Ala Thr Asn Cys Cys Phe Ser Glu Asp Gly Ser Leu	
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Leu Ala Val Ser Phe Glu Glu Ile Val Thr Ile Trp Asp Ser Val Thr	
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Val Phe Lys Pro Ser Glu Pro Arg Pro Leu Tyr Ile Gln Lys Gly Ile	
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Gln Gln Asp Glu Lys Leu Asn Glu Thr Leu Glu Asn Glu Leu Val Gln	
483 488 493 498	
cta ccc tta aca gaa aac ata ccc gca att agt gag ctt ctt cac act	2071
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Pro Ala His Val Leu	Pro Ser Ala Ala Phe	Leu Cys Ser Met Phe	Val	
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Asn Ser Leu Leu Leu	Ser Lys Glu Thr Lys	Ser Ala Lys Glu Ile	Pro	
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Lys Ser Arg Leu Ser Asp Ile Thr Gly Ser Ser Lys Thr Ser Arg Gly							
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Ser Val Ser Lys Ser Ala Pro Arg Val Lys Met Tyr Gln Leu Gln Tyr							
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aac tgc tct gac gat gag gta ctg att tac agg atg atc cca gcc tcc	1864						
Asn Cys Ser Asp Asp Glu Val Leu Ile Tyr Arg Met Ile Pro Ala Ser							
457		462		467		472	
aac aag gcc ttc gtg gtc aac aac ctg gtg tca ggg act ggc tac gac	1912						
Asn Lys Ala Phe Val Val Asn Asn Leu Val Ser Gly Thr Gly Tyr Asp							
473		478		483		488	
ttg tgt gtg ctg gcc atg tgg gat gac aca gcc acg aca ctc acg gcc	1960						
Leu Cys Val Leu Ala Met Trp Asp Asp Thr Ala Thr Thr Leu Thr Ala							
489		494		499		504	
acc aac atc gtg ggc tgc gcc cag ttc ttc acc aag gct gac tac ccg	2008						
Thr Asn Ile Val Gly Cys Ala Gln Phe Phe Thr Lys Ala Asp Tyr Pro							
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cag tgc cag tcc atg cac agc cag att ctg ggc ggc acc atg atc ctg	2056						
Gln Cys Gln Ser Met His Ser Gln Ile Leu Gly Gly Thr Met Ile Leu							
521		526		531		536	
gtc atc ggg ggc atc atc gtg gcc acg ctg ctg gtc ttc atc gtc atc	2104						
Val Ile Gly Gly Ile Ile Val Ala Thr Leu Leu Val Phe Ile Val Ile							
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ctc atg gtg cgc tac aag gtc tgc aac cac gag gcc ccc agc aag atg	2152						
Leu Met Val Arg Tyr Lys Val Cys Asn His Glu Ala Pro Ser Lys Met							
553		558		563		568	
gca gcg gcc gtg agc aat gtg tac tcc cag acc aac ggc gcc cag cca	2200						
Ala Ala Ala Val Ser Asn Val Tyr Ser Gln Thr Asn Gly Ala Gln Pro							
569		574		579		584	
ccg cct cca agc agc gca cca gcc ggg gcc ccg ccg cag ggc ccg ccg	2248						
Pro Pro Pro Ser Ser Ala Pro Ala Gly Ala Pro Pro Gln Gly Pro Pro							
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Lys	Val	Val	Val	Arg	Asn	Glu	Leu	Leu	Asp	Phe	Thr	Ala	Ser	Leu	Ala	
601					606					611					616	
cgc	gcc	agt	gac	tcc	tct	tcc	tcc	agc	tcc	ctg	ggc	agt	ggg	gag	gct	2344
Arg	Ala	Ser	Asp	Ser	Ser	Ser	Ser	Ser	Ser	Leu	Gly	Ser	Gly	Glu	Ala	
617					622					627					632	
gcg	ggg	ctg	gga	cgg	gcc	ccc	tgg	agg	atc	cca	ccc	tcc	gcc	cgg	cgc	2392
Ala	Gly	Leu	Gly	Arg	Ala	Pro	Trp	Arg	Ile	Pro	Pro	Ser	Ala	Pro	Arg	
633					638					643					648	
ccc	aag	ccc	agc	ctt	gac	cgc	ctg	atg	ggg	gcc	ttc	gcc	tcc	ctg	gac	2440
Pro	Lys	Pro	Ser	Leu	Asp	Arg	Leu	Met	Gly	Ala	Phe	Ala	Ser	Leu	Asp	
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ctc	aag	agt	cag	aga	aag	gag	gag	ctg	ctg	gac	tcc	agg	act	cca	gcc	2488
Leu	Lys	Ser	Gln	Arg	Lys	Glu	Glu	Leu	Leu	Asp	Ser	Arg	Thr	Pro	Ala	
665					670					675					680	
ggg	aga	ggg	gct	ggg	acg	tcg	gcc	cgg	ggc	cac	cac	tcg	gac	cga	gag	2536
Gly	Arg	Gly	Ala	Gly	Thr	Ser	Ala	Arg	Gly	His	His	Ser	Asp	Arg	Glu	
681					686					691					696	
cca	ctg	ctg	ggg	ccc	cct	gcg	gcc	cgg	gcc	agg	agc	ctg	ctc	ccc	ttg	2584
Pro	Leu	Leu	Gly	Pro	Pro	Ala	Ala	Arg	Ala	Arg	Ser	Leu	Leu	Pro	Leu	
697					702					707					712	
ccg	ttg	gag	ggc	aag	gcc	aaa	cgc	agc	cac	tcc	ttc	gac	atg	ggg	gac	2632
Pro	Leu	Glu	Gly	Lys	Ala	Lys	Arg	Ser	His	Ser	Phe	Asp	Met	Gly	Asp	
713					718					723					728	
ttt	gct	gct	gcg	gcg	gcg	gga	ggg	gtc	gtg	ccg	ggc	ggc	tac	agt	cct	2680
Phe	Ala	Ala	Ala	Ala	Ala	Gly	Gly	Val	Val	Pro	Gly	Gly	Tyr	Ser	Pro	
729					734					739					744	
cct	cgg	aag	gtc	tcg	aac	atc	tgg	acg	aag	cgc	agc	ctc	tct	gtc	aac	2728
Pro	Arg	Lys	Val	Ser	Asn	Ile	Trp	Thr	Lys	Arg	Ser	Leu	Ser	Val	Asn	
745					750					755					760	
ggc	atg	ctc	ttg	ccc	ttt	gag	gag	agt	gac	ctg	gtg	ggg	gcc	cgg	ggg	2776
Gly	Met	Leu	Leu	Pro	Phe	Glu	Glu	Ser	Asp	Leu	Val	Gly	Ala	Arg	Gly	
761					766					771					776	
act	ttt	ggc	agc	tcc	gaa	tgg	gtg	atg	gag	agc	acg	gtc	tag			2818
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 cgcgggagcag cctgcgctgg gccggccgag ggtcaagggtg gaagggtccaa ggactgagaa 180
 agaccctcga aggcattccac tttagtcctc cattccattc ctagagactg atcaggagtc 240
 aggcttcaga aggagtcccc tggaaggcct ccacaacctc acgctagagt caaga atg 298
 Met
 1
 gat atg ttc agc ttg gat atg atc atc agt gac cca gct gca gaa gcc 346
 Asp Met Phe Ser Leu Asp Met Ile Ile Ser Asp Pro Ala Ala Glu Ala
 2 7 12 17
 agc agg gct ggg aag aag cag ctc aga ggt gtt cag aac cct tgc cca 394
 Ser Arg Ala Gly Lys Lys Gln Leu Arg Gly Val Gln Asn Pro Cys Pro
 18 23 28 33
 tct gcc aga gcc aga ccc cgg cac aag tcc ctc aac ata aag gac aag 442
 Ser Ala Arg Ala Arg Pro Arg His Lys Ser Leu Asn Ile Lys Asp Lys
 34 39 44 49
 ata tca gaa tgg gaa ggg aag aaa gag gtg ccc act cct gca ccc agc 490
 Ile Ser Glu Trp Glu Gly Lys Lys Glu Val Pro Thr Pro Ala Pro Ser
 50 55 60 65
 agg aga gca gac gga cag gag gat tat ctg ccg tcc tct acg gtg gag 538
 Arg Arg Ala Asp Gly Gln Glu Asp Tyr Leu Pro Ser Ser Thr Val Glu
 66 71 76 81
 agg agg agt agt gat ggg gtg aga act cag gtc aca gag gct aag aat 586
 Arg Arg Ser Ser Asp Gly Val Arg Thr Gln Val Thr Glu Ala Lys Asn
 82 87 92 97
 gga atg agg cca gga aca gag agc aca gag aag gag agg aat aaa gga 634
 Gly Met Arg Pro Gly Thr Glu Ser Thr Glu Lys Glu Arg Asn Lys Gly
 98 103 108 113
 gca gtg aac gtc ggg gga cag gac cca gag ccg ggg caa gac cta agc 682
 Ala Val Asn Val Gly Gly Gln Asp Pro Glu Pro Gly Gln Asp Leu Ser
 114 119 124 129
 cag cca gaa cgg gaa gtg gat cct agc tgg ggc cga ggc cga gag cca 730
 Gln Pro Glu Arg Glu Val Asp Pro Ser Trp Gly Arg Gly Arg Glu Pro
 130 135 140 145
 aga ctt ggc aag cta cgc ttt cag aac gat cac ctc tcc gtg ctg aag 778
 Arg Leu Gly Lys Leu Arg Phe Gln Asn Asp His Leu Ser Val Leu Lys
 146 151 156 161

atc gag tta cat ggt cgc tgc ctg gga aag aag tgt gtc ttg aat ttt	1498
Ile Glu Leu His Gly Arg Cys Leu Gly Lys Lys Cys Val Leu Asn Phe	
386 391 396 401	
cct gct tct ccc acc tct tcc atc cct gac aca ctc acc aag cag tca	1546
Pro Ala Ser Pro Thr Ser Ser Ile Pro Asp Thr Leu Thr Lys Gln Ser	
402 407 412 417	
ttg tcc aaa cct gct ttt ttc cga caa aat tca gag agg agg aac ttc	1594
Leu Ser Lys Pro Ala Phe Phe Arg Gln Asn Ser Glu Arg Arg Asn Phe	
418 423 428 433	
aag ctg ctg gac act agg aag ctg agt cgg gat gga act ggg tcc cct	1642
Lys Leu Leu Asp Thr Arg Lys Leu Ser Arg Asp Gly Thr Gly Ser Pro	
434 439 444 449	
tcc aaa atc agc cct ccc tcc act ccc agc agc cct gat gac att ttc	1690
Ser Lys Ile Ser Pro Pro Ser Thr Pro Ser Ser Pro Asp Asp Ile Phe	
450 455 460 465	
ttt aac ctt gga gac cca cag aac ggc agg aag aag aga aag ata ccc	1738
Phe Asn Leu Gly Asp Pro Gln Asn Gly Arg Lys Lys Arg Lys Ile Pro	
466 471 476 481	
aag ctg gtg ttg cga atc aac gcc att tat gag gtc cgg aga gga aag	1786
Lys Leu Val Leu Arg Ile Asn Ala Ile Tyr Glu Val Arg Arg Gly Lys	
482 487 492 497	
aaa cgg gtg aag agg ctg tcc cag tca atg gag agc aac tca gga aaa	1834
Lys Arg Val Lys Arg Leu Ser Gln Ser Met Glu Ser Asn Ser Gly Lys	
498 503 508 513	
gtg aca gat gag aac agt gag tct gac agt gac aca gag gag aag ctg	1882
Val Thr Asp Glu Asn Ser Glu Ser Asp Ser Asp Thr Glu Glu Lys Leu	
514 519 524 529	
aaa gct cac agc cag cgc ctg gtc aac gtg aag tcc cgg ctg aag cag	1930
Lys Ala His Ser Gln Arg Leu Val Asn Val Lys Ser Arg Leu Lys Gln	
530 535 540 545	
gcg cct cgg tac cca tca ctt gcc cgg gaa ctc atc gag tac cag gag	1978
Ala Pro Arg Tyr Pro Ser Leu Ala Arg Glu Leu Ile Glu Tyr Gln Glu	
546 551 556 561	
agg cag ctc ttc gag tac ttt gtg gtt gtg tct ttg cac aag aag cag	2026
Arg Gln Leu Phe Glu Tyr Phe Val Val Val Ser Leu His Lys Lys Gln	
562 567 572 577	
gcc ggg gct gcc tac gtg cca gaa ctc acc caa cag ttc cct ctg aag	2074
Ala Gly Ala Ala Tyr Val Pro Glu Leu Thr Gln Gln Phe Pro Leu Lys	
578 583 588 593	
ttg gaa agg tct ttc aag ttc atg aga gaa gct gag gac caa ctg aag	2122
Leu Glu Arg Ser Phe Lys Phe Met Arg Glu Ala Glu Asp Gln Leu Lys	
594 599 604 609	
gcc att ccc cag ttc tgt ttt ccc gat gcc aag gat tgg gtt cct gtc	2170

Ala	Ile	Pro	Gln	Phe	Cys	Phe	Pro	Asp	Ala	Lys	Asp	Trp	Val	Pro	Val		
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Gln	Gln	Phe	Thr	Ser	Glu	Thr	Phe	Ser	Phe	Val	Leu	Thr	Gly	Glu	Asp		
626					631					636					641		
ggg	agc	aga	agg	ttc	ggt	tac	tgc	cga	aga	ctg	ctg	cct	gga	ggc	aaa	2266	
Gly	Ser	Arg	Arg	Phe	Gly	Tyr	Cys	Arg	Arg	Leu	Leu	Pro	Gly	Gly	Lys		
642					647					652					657		
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Gly	Lys	Arg	Leu	Pro	Glu	Val	Tyr	Cys	Ile	Val	Ser	Arg	Leu	Gly	Cys		
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ttc	agc	ctc	ttt	tca	agg	atc	ttg	gat	gag	gtg	gaa	aaa	aga	cga	ggc	2362	
Phe	Ser	Leu	Phe	Ser	Arg	Ile	Leu	Asp	Glu	Val	Glu	Lys	Arg	Arg	Gly		
674					679					684					689		
atc	tct	cct	gcc	ctg	gtt	cag	cca	ctc	atg	aga	agt	gtc	atg	gaa	gcc	2410	
Ile	Ser	Pro	Ala	Leu	Val	Gln	Pro	Leu	Met	Arg	Ser	Val	Met	Glu	Ala		
690					695					700					705		
cct	ttc	cca	gcc	ctg	ggc	aaa	acc	atc	ctt	gtc	aag	aac	ttc	ctg	cca	2458	
Pro	Phe	Pro	Ala	Leu	Gly	Lys	Thr	Ile	Leu	Val	Lys	Asn	Phe	Leu	Pro		
706					711					716					721		
ggt	tca	gga	act	gag	gtg	atc	gaa	ctg	tgc	cgc	ccg	ctg	gac	tcc	cgg	2506	
Gly	Ser	Gly	Thr	Glu	Val	Ile	Glu	Leu	Cys	Arg	Pro	Leu	Asp	Ser	Arg		
722					727					732					737		
gtc	gag	cac	gtg	gac	ttt	gag	tct	ctc	ttc	tcc	tcc	ctc	agc	gtc	cgc	2554	
Val	Glu	His	Val	Asp	Phe	Glu	Ser	Leu	Phe	Ser	Ser	Leu	Ser	Val	Arg		
738					743					748					753		
cac	ctg	gtc	tgt	gtg	ttt	gcc	tcc	ctg	ctt	ctg	gag	agg	agg	gtc	atc	2602	
His	Leu	Val	Cys	Val	Phe	Ala	Ser	Leu	Leu	Leu	Glu	Arg	Arg	Val	Ile		
754					759					764					769		
ttc	att	gca	gac	aag	ctc	agc	atc	ctg	tcc	aag	tgc	tgc	cac	gcg	atg	2650	
Phe	Ile	Ala	Asp	Lys	Leu	Ser	Ile	Leu	Ser	Lys	Cys	Cys	His	Ala	Met		
770					775					780					785		
gtg	gcg	ctg	atc	tac	ccc	ttc	gcc	tgg	cag	cac	acc	tac	atc	ccg	gtg	2698	
Val	Ala	Leu	Ile	Tyr	Pro	Phe	Ala	Trp	Gln	His	Thr	Tyr	Ile	Pro	Val		
786					791					796					801		
ctg	cca	ccc	gcc	atg	gtc	gac	atc	gtg	tgc	tcg	ccg	acg	ccc	ttc	ctc	2746	
Leu	Pro	Pro	Ala	Met	Val	Asp	Ile	Val	Cys	Ser	Pro	Thr	Pro	Phe	Leu		
802					807					812					817		
atc	ggg	ctg	ctc	tcc	agc	tcg	ctg	cca	ctg	ctc	agg	gag	ctg	ccg	ctg	2794	
Ile	Gly	Leu	Leu	Ser	Ser	Ser	Leu	Pro	Leu	Leu	Arg	Glu	Leu	Pro	Leu		
818					823					828					833		
gaa	gag	gtc	ctt	gtg	gtt	gac	ctc	gtc	aac	agc	cgg	ttc	ctc	aga	cag	2842	
Glu	Glu	Val	Leu	Val	Val	Asp	Leu	Val	Asn	Ser	Arg	Phe	Leu	Arg	Gln		

834	839	844	849	
atg gac gat gag gac	tcc atc ctg ccc cgg	aag ctt cag gtg gcc ctg		2890
Met Asp Asp Glu Asp	Ser Ile Leu Pro Arg	Lys Leu Gln Val Ala Leu		
850	855	860	865	
gaa cac att ctg gaa	cag agg aac gag ctg	gct tgt gag cag gac gaa		2938
Glu His Ile Leu Glu	Gln Arg Asn Glu Leu	Ala Cys Glu Gln Asp Glu		
866	871	876	881	
ggg ccc cta gac ggc	agg cac ggt cca gag	tcc agc ccc ttg aac gag		2986
Gly Pro Leu Asp Gly	Arg His Gly Pro Glu	Ser Ser Pro Leu Asn Glu		
882	887	892	897	
gtg gtg tct gaa gcc	ttt gtc cgc ttc ttc	gtg gag att gtg gga cac		3034
Val Val Ser Glu Ala	Phe Val Arg Phe Phe	Val Glu Ile Val Gly His		
898	903	908	913	
tac tct ttg ttc ctg	acg tcg ggc gag cgt	gag gag aga acc ctg cag		3082
Tyr Ser Leu Phe Leu	Thr Ser Gly Glu Arg	Glu Glu Arg Thr Leu Gln		
914	919	924	929	
cgg gag gcc ttc cgc	aaa gct gtc tcc tcc	aag agc ctc cgc cac ttc		3130
Arg Glu Ala Phe Arg	Lys Ala Val Ser Ser	Lys Ser Leu Arg His Phe		
930	935	940	945	
ctg gag gtc ttc atg	gag act cag atg ttt	cgg ggc ttc atc cag gag		3178
Leu Glu Val Phe Met	Glu Thr Gln Met Phe	Arg Gly Phe Ile Gln Glu		
946	951	956	961	
cgg gag ctg cgc cgg	cag gat gcc aaa ggt	ctg ttt gag gtc cga gcc		3226
Arg Glu Leu Arg Arg	Gln Asp Ala Lys Gly	Leu Phe Glu Val Arg Ala		
962	967	972	977	
caa gag tat ctg gaa	aca ctc ccc agt gga	gag cac agc ggt gtc aat		3274
Gln Glu Tyr Leu Glu	Thr Leu Pro Ser Gly	Glu His Ser Gly Val Asn		
978	983	988	993	
aag ttc ctg aag gga	cta ggc aat aaa atg	aaa ttt ctc cac aag aaa		3322
Lys Phe Leu Lys Gly	Leu Gly Asn Lys Met	Lys Phe Leu His Lys Lys		
994	999	1004	1009	
taa ctct cagcctcaag	ggaaaaacttc ctccctagtc	agccctatgc tttaaaaaca		3379
*				
1010				
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 Met Glu Gly
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 Pro Glu Gly Leu Gly Arg Lys Gln Ala Cys Leu Ala Met Leu Leu His
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 ttc ttg gac acc tac cag ggg ctg ctt caa gag gaa gag ggg gcc ggc 631
 Phe Leu Asp Thr Tyr Gln Gly Leu Leu Gln Glu Glu Gly Ala Gly
 20 25 30 35
 cac atc atc aag gat cta tac ctg cta att atg aag gac gag tcc ctt 679
 His Ile Ile Lys Asp Leu Tyr Leu Leu Ile Met Lys Asp Glu Ser Leu
 36 41 46 51
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 Tyr Gln Gly Leu Arg Glu Asp Thr Leu Arg Leu His Gln Leu Val Glu
 52 57 62 67
 acg gtg gaa cta aag att cca gag gag aac cag cca ccc agc aag cag 775
 Thr Val Glu Leu Lys Ile Pro Glu Glu Asn Gln Pro Pro Ser Lys Gln
 68 73 78 83
 gtg aag cca ctc ttc cgc cac ttc cgc cgg ata gac tcc tgt ctg cag 823
 Val Lys Pro Leu Phe Arg His Phe Arg Arg Ile Asp Ser Cys Leu Gln
 84 89 94 99
 acc cgg gtg gcc ttc cgg ggc tct gat gag atc ttc tgc cgt gta tac 871

Thr Arg Val Ala Phe Arg Gly Ser Asp Glu Ile Phe Cys Arg Val Tyr	
100 105 110 115	
atg cct gac cac tct tat gtg acc ata cgc agc cgc ctt tca gca tct	919
Met Pro Asp His Ser Tyr Val Thr Ile Arg Ser Arg Leu Ser Ala Ser	
116 121 126 131	
gtg cag gac att ctg ggc tct gtg acg gag aaa ctt caa tat tca gag	967
Val Gln Asp Ile Leu Gly Ser Val Thr Glu Lys Leu Gln Tyr Ser Glu	
132 137 142 147	
gag ccc gcg ggg cgt gag gat tcc ctc atc ctg gta gct gtg tcc tcc	1015
Glu Pro Ala Gly Arg Glu Asp Ser Leu Ile Leu Val Ala Val Ser Ser	
148 153 158 163	
tct gga gag aag gtc ctt ctc cag ccc act gag gac tgt gtt ttc acc	1063
Ser Gly Glu Lys Val Leu Leu Gln Pro Thr Glu Asp Cys Val Phe Thr	
164 169 174 179	
gca ctg ggc atc aac agc cac ctg ttt gcc tgt act cgg gac agc tat	1111
Ala Leu Gly Ile Asn Ser His Leu Phe Ala Cys Thr Arg Asp Ser Tyr	
180 185 190 195	
gag gct ctg gtg ccc ctc ccc gag gag atc cag gtc tcc cct gga gac	1159
Glu Ala Leu Val Pro Leu Pro Glu Glu Ile Gln Val Ser Pro Gly Asp	
196 201 206 211	
aca gag atc cac cga gtg gag cct gag gac gtt gcc aac cac cta act	1207
Thr Glu Ile His Arg Val Glu Pro Glu Asp Val Ala Asn His Leu Thr	
212 217 222 227	
gcc ttc cac tgg gag ctg ttc cga tgt gtg cat gag ctg gag ttc gtg	1255
Ala Phe His Trp Glu Leu Phe Arg Cys Val His Glu Leu Glu Phe Val	
228 233 238 243	
gac tac gtg ttc cac ggg gag cgc gcc cgc cgg gag acg gcc aac ttg	1303
Asp Tyr Val Phe His Gly Glu Arg Gly Arg Arg Glu Thr Ala Asn Leu	
244 249 254 259	
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Glu Leu Leu Leu Gln Arg Cys Ser Glu Val Thr His Trp Val Ala Thr	
260 265 270 275	
gaa gtg ctg ctc tgc gag gcc ccg gcc aag cgc gcg cag ctg ctc aag	1399
Glu Val Leu Leu Cys Glu Ala Pro Gly Lys Arg Ala Gln Leu Leu Lys	
276 281 286 291	
aag ttc atc aag atc gcg gcc ctc tgc aag cag aac cag gac ctg ctg	1447
Lys Phe Ile Lys Ile Ala Ala Leu Cys Lys Gln Asn Gln Asp Leu Leu	
292 297 302 307	
tct ttc tac gcc gtg gtc atg ggg ctg gac aac gcc gct gtc agc cgc	1495
Ser Phe Tyr Ala Val Val Met Gly Leu Asp Asn Ala Ala Val Ser Arg	
308 313 318 323	
ctt cga ctc acc tgg gag aag ctg cca ggg aaa ttc aag aac ttg ttt	1543
Leu Arg Leu Thr Trp Glu Lys Leu Pro Gly Lys Phe Lys Asn Leu Phe	

324	329	334	339	
cgc aaa ttt gag aac ctg acg gac ccc tgc agg aac cac aaa agc tac				1591
Arg Lys Phe Glu Asn Leu Thr Asp Pro Cys Arg Asn His Lys Ser Tyr				
340	345	350	355	
cga gaa gtg atc tcc aaa atg aag ccc cct gtg att ccc ttc gtg cct				1639
Arg Glu Val Ile Ser Lys Met Lys Pro Pro Val Ile Pro Phe Val Pro				
356	361	366	371	
ctg atc ctc aaa gac ctg act ttc ctg cac gaa ggg agt aag acc ctt				1687
Leu Ile Leu Lys Asp Leu Thr Phe Leu His Glu Gly Ser Lys Thr Leu				
372	377	382	387	
gta gat ggt ttg gtg aac atc gag aag ctg cat tca gtg gcc gaa aaa				1735
Val Asp Gly Leu Val Asn Ile Glu Lys Leu His Ser Val Ala Glu Lys				
388	393	398	403	
gtg agg aca atc cgc aaa tac cgg agc cgg ccc ctt tgc ctg gac atg				1783
Val Arg Thr Ile Arg Lys Tyr Arg Ser Arg Pro Leu Cys Leu Asp Met				
404	409	414	419	
gag gca tcc ccc aat cac ctg cag acc aag gcc tat gtg cgc cag ttt				1831
Glu Ala Ser Pro Asn His Leu Gln Thr Lys Ala Tyr Val Arg Gln Phe				
420	425	430	435	
cag gtc atc gac aac cag aac ctc ctc ttc gag ctc tcc tac aag ctg				1879
Gln Val Ile Asp Asn Gln Asn Leu Leu Phe Glu Leu Ser Tyr Lys Leu				
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Glu Ala Asn Ser Gln *				
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attgattgaa cgtctgtcag tgacctctgc aaactctgct tttgttgtag gaagcagtac	180
aggttttgat taagcactca gctgatgtca atgcaaggga caagaactgg cagacccctc	240
ttcatgtggc agcagccaac aaggctgtca aatgtgcaga agtgatcatt cccctgctga	300

gcagtgtaa	tgtctccgac	cgaggggggc	gcacagcctt	gcaccatgcg	gctctgaacg	360
gccacgtgga	g atg gtc aat tta ctc ttg gcc.aaa ggg gca aat atc aat	410				
	Met Val Asn Leu Leu Leu Ala Lys Gly Ala Asn Ile Asn					
	1 5 10					
gca ttt gac aag aag gac cgg cgt gct ctg cac tgg gca gca tac atg	458					
Ala Phe Asp Lys Lys Asp Arg Arg Ala Leu His Trp Ala Ala Tyr Met						
14 19 24 29						
ggc cac ttg gat gtt gta gca ttg ctc att aac cat ggc gca gaa gtg	506					
Gly His Leu Asp Val Val Ala Leu Leu Ile Asn His Gly Ala Glu Val						
30 35 40 45						
acc tgt aag gat aag aag ggt tat acc cct ctg cat gct gca gcc tcc	554					
Thr Cys Lys Asp Lys Lys Gly Tyr Thr Pro Leu His Ala Ala Ala Ser						
46 51 56 61						
aat gga cag att aat gtt gtc aag cat ctc ctg aac ctg ggg gtg gag	602					
Asn Gly Gln Ile Asn Val Val Lys His Leu Leu Asn Leu Gly Val Glu						
62 67 72 77						
att gat gaa atc aat gtc tat gga aat aca gcg ctt cac atc gcc tgc	650					
Ile Asp Glu Ile Asn Val Tyr Gly Asn Thr Ala Leu His Ile Ala Cys						
78 83 88 93						
tac aat gga cag gat gct gtg gtt aac gag ttg att gac tac ggt gct	698					
Tyr Asn Gly Gln Asp Ala Val Val Asn Glu Leu Ile Asp Tyr Gly Ala						
94 99 104 109						
aac gtg aac cag cca aac aat aat ggg ttc acc cct ttg cat ttt gct	746					
Asn Val Asn Gln Pro Asn Asn Asn Gly Phe Thr Pro Leu His Phe Ala						
110 115 120 125						
gct gcc tcc act cat ggt gct ttg tgt ctt gaa ttg tta gta aac aac	794					
Ala Ala Ser Thr His Gly Ala Leu Cys Leu Glu Leu Leu Val Asn Asn						
126 131 136 141						
ggg gca gat gtt aac att cag agt aaa gat ggc aaa agt cca ctg cac	842					
Gly Ala Asp Val Asn Ile Gln Ser Lys Asp Gly Lys Ser Pro Leu His						
142 147 152 157						
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Met Thr Ala Val His Gly Arg Phe Thr Arg Ser Gln Thr Leu Ile Gln						
158 163 168 173						
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Asn Gly Gly Glu Ile Asp Cys Val Asp Lys Asp Gly Asn Thr Pro Leu						
174 179 184 189						
cat gtg gct gca aga tac ggt cat gag ctt ttg att aac acc tta ata	986					
His Val Ala Ala Arg Tyr Gly His Glu Leu Leu Ile Asn Thr Leu Ile						
190 195 200 205						
acc agc gga gct gac aca gcc aag tgt gga atc cat agc atg ttc cct	1034					
Thr Ser Gly Ala Asp Thr Ala Lys Cys Gly Ile His Ser Met Phe Pro						

206	211	216	221	
tta cat tta gct gcc cta aat gct cac tct gac tgc tgc aga aag ttg				1082
Leu His Leu Ala Ala Leu Asn Ala His Ser Asp Cys Cys Arg Lys Leu				
222	227	232	237	
tta tca tcg gga caa aag tat agc ata gta tcc ttg ttt agt aat gag				1130
Leu Ser Ser Gly Gln Lys Tyr Ser Ile Val Ser Leu Phe Ser Asn Glu				
238	243	248	253	
cac gtg ctg tct gca ggc ttt gaa ata gac acc cca gat aaa ttt gga				1178
His Val Leu Ser Ala Gly Phe Glu Ile Asp Thr Pro Asp Lys Phe Gly				
254	259	264	269	
aga acg tgc ctt cat gct gct gct gca gga ggt aat gtg gaa tgt ata				1226
Arg Thr Cys Leu His Ala Ala Ala Ala Gly Gly Asn Val Glu Cys Ile				
270	275	280	285	
aaa ctc ttg cag agc agc gga gca gat ttc cat aaa aag gac aag tgt				1274
Lys Leu Leu Gln Ser Ser Gly Ala Asp Phe His Lys Lys Asp Lys Cys				
286	291	296	301	
ggg agg acc cct ttg cac tat gca gct gcg aat tgt cat ttc cac tgt				1322
Gly Arg Thr Pro Leu His Tyr Ala Ala Ala Asn Cys His Phe His Cys				
302	307	312	317	
att gag aca tta gtg acc aca ggg gcc aac gtt aat gaa aca gat gac				1370
Ile Glu Thr Leu Val Thr Thr Gly Ala Asn Val Asn Glu Thr Asp Asp				
318	323	328	333	
tgg gga cgc aca gct ttg cat tac gcc gct gca tca gac atg gat aga				1418
Trp Gly Arg Thr Ala Leu His Tyr Ala Ala Ala Ser Asp Met Asp Arg				
334	339	344	349	
aat aag act atc tta gga aat gcc cat gat aat tca gaa gaa ctt gaa				1466
Asn Lys Thr Ile Leu Gly Asn Ala His Asp Asn Ser Glu Glu Leu Glu				
350	355	360	365	
aga gcc agg gag ctg aag gaa aag gaa gcc aca cta tgt cta gag ttt				1514
Arg Ala Arg Glu Leu Lys Glu Lys Glu Ala Thr Leu Cys Leu Glu Phe				
366	371	376	381	
ctg ctt caa aat gat gca aat cca tct atc cgg gac aag gaa ggt tac				1562
Leu Leu Gln Asn Asp Ala Asn Pro Ser Ile Arg Asp Lys Glu Gly Tyr				
382	387	392	397	
aat agc ata cat tat gct gcc gcc tat ggg cac agg cag tgt ctg gaa				1610
Asn Ser Ile His Tyr Ala Ala Ala Tyr Gly His Arg Gln Cys Leu Glu				
398	403	408	413	
ttg ctt ttg gaa aga aca aac agt gga ttt gaa gaa tca gat tct ggt				1658
Leu Leu Leu Glu Arg Thr Asn Ser Gly Phe Glu Glu Ser Asp Ser Gly				
414	419	424	429	
gct act aag agt cca ctc cac tta gct gcc tac aat ggg cac cat caa				1706
Ala Thr Lys Ser Pro Leu His Leu Ala Ala Tyr Asn Gly His His Gln				
430	435	440	445	

gcc ttg gaa gtc ctt ctg cag tcg ttg gtg gac ctg gac atc agg gat	1754
Ala Leu Glu Val Leu Leu Gln Ser Leu Val Asp Leu Asp Ile Arg Asp	
446 451 456 461	
gag aaa ggc cgc act gct ctg gat ctg gct gcc ttt aaa gga cac aca	1802
Glu Lys Gly Arg Thr Ala Leu Asp Leu Ala Ala Phe Lys Gly His Thr	
462 467 472 477	
gaa tgt gtg gaa gcg ctt atc aat cag ggc gca tcc atc ttt gtg aaa	1850
Glu Cys Val Glu Ala Leu Ile Asn Gln Gly Ala Ser Ile Phe Val Lys	
478 483 488 493	
gac aat gta acc aaa aga acc cca ctt cat gcc tca gta att aat ggt	1898
Asp Asn Val Thr Lys Arg Thr Pro Leu His Ala Ser Val Ile Asn Gly	
494 499 504 509	
cac aca ctg tgt tta cgg ctg ttg cta gaa att gca gac aac ccg gag	1946
His Thr Leu Cys Leu Arg Leu Leu Leu Glu Ile Ala Asp Asn Pro Glu	
510 515 520 525	
gcg gtc gat gtg aaa gat gcc aaa gga caa aca cca ctg atg ctt gca	1994
Ala Val Asp Val Lys Asp Ala Lys Gly Gln Thr Pro Leu Met Leu Ala	
526 531 536 541	
gta gca tat gga cat att gac gct gtt tca ttg tta ctt gaa aag gaa	2042
Val Ala Tyr Gly His Ile Asp Ala Val Ser Leu Leu Leu Glu Lys Glu	
542 547 552 557	
gcc aac gta gac act gtt gac atc cta gga tgc aca gct tta cac aga	2090
Ala Asn Val Asp Thr Val Asp Ile Leu Gly Cys Thr Ala Leu His Arg	
558 563 568 573	
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Gly Ile Met Thr Gly His Glu Glu Cys Val Gln Met Leu Leu Glu Gln	
574 579 584 589	
gaa gtg tca att ctc tgt aaa gat tcc aga ggg agg acg ccc ttg cac	2186
Glu Val Ser Ile Leu Cys Lys Asp Ser Arg Gly Arg Thr Pro Leu His	
590 595 600 605	
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Tyr Ala Ala Ala Arg Gly His Ala Thr Trp Leu Ser Glu Leu Leu Gln	
606 611 616 621	
atg gct ctt tct gag gag gac tgt tgt ttc aaa gat aac caa ggc tac	2282
Met Ala Leu Ser Glu Glu Asp Cys Cys Phe Lys Asp Asn Gln Gly Tyr	
622 627 632 637	
acg ccg ctg cac tgg gct tgt tac aat ggt aat gaa aac tgt ata gag	2330
Thr Pro Leu His Trp Ala Cys Tyr Asn Gly Asn Glu Asn Cys Ile Glu	
638 643 648 653	
gta ctt ttg gag caa aaa tgt ttt cgc aaa ttt atc ggt aat ccc ttt	2378
Val Leu Leu Glu Gln Lys Cys Phe Arg Lys Phe Ile Gly Asn Pro Phe	
654 659 664 669	

act cca ctg cac tgt gca ata atc aat gat cat ggg aat tgt gca tca	2426
Thr Pro Leu His Cys Ala Ile Ile Asn Asp His Gly Asn Cys Ala Ser	
670 675 680 685	
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Leu Leu Leu Gly Ala Ile Asp Ser Ser Ile Val Ser Cys Arg Asp Asp	
686 691 696 701	
aaa ggc agg aca ccc ctt cat gcg gca gca ttt gct gat cat gtg gag	2522
Lys Gly Arg Thr Pro Leu His Ala Ala Ala Phe Ala Asp His Val Glu	
702 707 712 717	
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Cys Leu Gln Leu Leu Leu Arg His Ser Ala Pro Val Asn Ala Val Asp	
718 723 728 733	
aat tca ggg aaa aca gca ctg atg atg gct gct gag aat ggg cag gca	2618
Asn Ser Gly Lys Thr Ala Leu Met Met Ala Ala Glu Asn Gly Gln Ala	
734 739 744 749	
ggc gct gtg gat att ttg gtg aac agt gcc cag gct gat ctg act gta	2666
Gly Ala Val Asp Ile Leu Val Asn Ser Ala Gln Ala Asp Leu Thr Val	
750 755 760 765	
aag gat aag gac ttg aat aca ccc tta cat ttg gct tgt agt aaa ggt	2714
Lys Asp Lys Asp Leu Asn Thr Pro Leu His Leu Ala Cys Ser Lys Gly	
766 771 776 781	
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His Glu Lys Cys Ala Leu Leu Ile Leu Asp Lys Ile Gln Asp Glu Ser	
782 787 792 797	
ctt att aat gaa aaa aat aat gca ctg cag aca ccc ctc cac gtc gct	2810
Leu Ile Asn Glu Lys Asn Asn Ala Leu Gln Thr Pro Leu His Val Ala	
798 803 808 813	
gcg cgc aat ggc tta aag gtg gta gtt gag gag ttg ctg gcc aaa ggg	2858
Ala Arg Asn Gly Leu Lys Val Val Val Glu Glu Leu Leu Ala Lys Gly	
814 819 824 829	
gcc tgt gta ctt gct gta gat gaa aat ggc tgt taa	2894
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taagttagaa tacgatgtaa ctgttaccag gaaccag atg caa gag cag ctg gat 175
Met Gln Glu Gln Leu Asp
1
cac ctt ggt gaa gtt cag acg gaa tca gca gga att cag cgt gca cag 223
His Leu Gly Glu Val Gln Thr Glu Ser Ala Gly Ile Gln Arg Ala Gln
7 12 17 22
att cag aaa gaa ctt tgg cga att cag gat gtc atg gaa ggg ctg agt 271
Ile Gln Lys Glu Leu Trp Arg Ile Gln Asp Val Met Glu Gly Leu Ser
23 28 33 38
aaa cat aag cag caa aga ggt act aca gaa ata ggt atg ata gga tca 319
Lys His Lys Gln Gln Arg Gly Thr Thr Glu Ile Gly Met Ile Gly Ser
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Lys Pro Phe Ser Thr Val Lys Tyr Lys Asn Glu Gly Pro Asp Tyr Arg
55 60 65 70
ctc tac aag agt gaa cca gag tta aca aca gtg gca gaa gtt gat gaa 415
Leu Tyr Lys Ser Glu Pro Glu Leu Thr Thr Val Ala Glu Val Asp Glu
71 76 81 86
tct aat gga gaa gaa aaa tca gaa cct gtt tca gag ata gaa act tca 463
Ser Asn Gly Glu Glu Lys Ser Glu Pro Val Ser Glu Ile Glu Thr Ser
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Val Val Lys Gly Ser His Phe Pro Val Gly Val Val Pro Pro Arg Ala
103 108 113 118
aaa tca cca aca ccc gaa tct tcg aca ata gct tcc tat gta acc ttg 559
Lys Ser Pro Thr Pro Glu Ser Ser Thr Ile Ala Ser Tyr Val Thr Leu
119 124 129 134
agg aaa act aag aag atg atg gat cta aga acg gaa aga cca aga agt 607
Arg Lys Thr Lys Lys Met Met Asp Leu Arg Thr Glu Arg Pro Arg Ser
135 140 145 150
gca gtg gaa cag ctc tgt ttg gct gaa agt act cga cca agg atg act 655
Ala Val Glu Gln Leu Cys Leu Ala Glu Ser Thr Arg Pro Arg Met Thr
151 156 161 166
gtg gaa gag caa atg gaa aga ata aga aga cat caa caa gcg tgc ctg 703
Val Glu Glu Gln Met Glu Arg Ile Arg Arg His Gln Gln Ala Cys Leu
167 172 177 182
agg gag aag aaa aaa ggg tta aat gtt atc ggt gct tca gac cag tca 751
Arg Glu Lys Lys Lys Gly Leu Asn Val Ile Gly Ala Ser Asp Gln Ser
183 188 193 198

ccc tta caa agc cct tca aat tta agg gat aat cca ttt agg act act	799
Pro Leu Gln Ser Pro Ser Asn Leu Arg Asp Asn Pro Phe Arg Thr Thr	
199 204 209 214	
cag act cga agg agg gat gat aag gaa ctg gac act gcc att aga gaa	847
Gln Thr Arg Arg Arg Asp Asp Lys Glu Leu Asp Thr Ala Ile Arg Glu	
215 220 225 230	
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Asn Asp Val Lys Pro Asp His Glu Thr Pro Ala Thr Glu Ile Val Gln	
231 236 241 246	
cta aaa gaa acc gaa ccc caa aat gtg gac ttc agc aaa gag tta aaa	943
Leu Lys Glu Thr Glu Pro Gln Asn Val Asp Phe Ser Lys Glu Leu Lys	
247 252 257 262	
aaa act gaa aac att tca tat gaa atg ctt ttt gaa cct gag cca aat	991
Lys Thr Glu Asn Ile Ser Tyr Glu Met Leu Phe Glu Pro Glu Pro Asn	
263 268 273 278	
gga gta aat tct gtg gaa atg atg gat aaa gaa aga aac aaa gac aaa	1039
Gly Val Asn Ser Val Glu Met Met Asp Lys Glu Arg Asn Lys Asp Lys	
279 284 289 294	
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Met Pro Glu Asp Val Thr Phe Ser Pro Gln Asp Glu Thr Gln Thr Ala	
295 300 305 310	
aat cat aaa cca gaa gag cat cct gaa gaa aat aca aag aac agt gtt	1135
Asn His Lys Pro Glu Glu His Pro Glu Glu Asn Thr Lys Asn Ser Val	
311 316 321 326	
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Asp Glu Gln Glu Glu Thr Val Ile Ser Tyr Glu Ser Thr Pro Glu Val	
327 332 337 342	
tct aga gga aat caa aca atg gca gtg aaa agt ctg tcc cca tct cct	1231
Ser Arg Gly Asn Gln Thr Met Ala Val Lys Ser Leu Ser Pro Ser Pro	
343 348 353 358	
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Glu Ser Ser Ala Ser Pro Val Pro Ser Thr Gln Pro Gln Leu Thr Glu	
359 364 369 374	
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Gly Ser His Phe Met Cys Val *	
375 380	
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agttttgtta cagggcctca ccaagagagg gcct      atg gag gcc gag gac cag      172
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ggg gag ctt ttc ctg cac ctc cgg tca gtg gca cgt gcc ccc cag acc      220
Gly Glu Leu Phe Leu His Leu Arg Ser Val Ala Arg Ala Pro Gln Thr
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tta tct atg cac cga ctc cag aga aag ctg aag gag gca gcc aga aaa      268
Leu Ser Met His Arg Leu Gln Arg Lys Leu Lys Glu Ala Ala Arg Lys
  23                      28                      33                      38

atc atc agc ctc cgc ctg gag aaa gag cag ctc atc gag atg ggg aac      316
Ile Ile Ser Leu Arg Leu Glu Lys Glu Gln Leu Ile Glu Met Gly Asn
  39                      44                      49                      54

agg ctc cgt gca gag ctg ggc cga ccc gaa agg tgg ctg ttg cac cac      364
Arg Leu Arg Ala Glu Leu Gly Arg Pro Glu Arg Trp Leu Leu His His
  55                      60                      65                      70

gcc ctc cct cct gcc cct gag gcc cgg aag cca ggc gag gag ccc agg      412
Ala Leu Pro Pro Ala Pro Glu Ala Arg Lys Pro Gly Glu Glu Pro Arg
  71                      76                      81                      86

agg cct ttg gat cgc agc cca cct ttg gga cag gtg cag ccc cat ttt      460
Arg Pro Leu Asp Arg Ser Pro Pro Leu Gly Gln Val Gln Pro His Phe
  87                      92                      97                      102

aca tct cag gac gcc aag agt gcc gag gat gag gct cct tcc aga cac      508
Thr Ser Gln Asp Ala Lys Ser Ala Glu Asp Glu Ala Pro Ser Arg His
  103                      108                      113                      118

ttg gga aag cac cag ccc cgc tca gca cag gtg ggc agc aga ctt gac      556
Leu Gly Lys His Gln Pro Arg Ser Ala Gln Val Gly Ser Arg Leu Asp
  119                      124                      129                      134

gcc ctg caa ggc ccg aag aca caa cac agc atc cac acg gtg acc tgt      604
Ala Leu Gln Gly Pro Lys Thr Gln His Ser Ile His Thr Val Thr Cys
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aaa tca cct cgg cag aaa gaa gac agg tcc cca aag cca ccc cag gct      652

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Phe Ala Ser Gly Thr Leu Gln Asp Met Trp Arg Leu Leu Asp Leu Gly	
183 188 193 198	
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Ser Ser Pro Ser Gly Val Thr Ser Gln Gly Asp Ser Thr Pro Glu Leu	
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cca gct cct cca gca gcc gac agg agg ccc gtc aag atg cag gca ggc	844
Pro Ala Pro Pro Ala Ala Asp Arg Arg Pro Val Lys Met Gln Ala Gly	
215 220 225 230	
att gcc acc cca ggg atg aag aca gca gcc cag gca aag gcc aag acc	892
Ile Ala Thr Pro Gly Met Lys Thr Ala Ala Gln Ala Lys Ala Lys Thr	
231 236 241 246	
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Thr Gly Ala Ser Arg Ser His Pro Ala Lys Ala Lys Gly Cys Gln Arg	
247 252 257 262	
ccc ccc aag atc cgt aac tac aac att atg gac tga cttc ctccccccac	990
Pro Pro Lys Ile Arg Asn Tyr Asn Ile Met Asp *	
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Ile	Leu	Ala	Ser	Asn	Thr	Met	Asp	Ser	Gln	Met	Leu	Ala	Ser	Asn	Thr	
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atg	gac	tcc	cag	atg	cta	gca	tcc	aac	acc	atg	gac	tcc	cag	atg	tta	144
Met	Asp	Ser	Gln	Met	Leu	Ala	Ser	Asn	Thr	Met	Asp	Ser	Gln	Met	Leu	
33					38					43					48	
gcg	tct	agc	acc	atg	gac	tcc	cag	atg	tta	gca	act	agc	tcc	atg	gac	192
Ala	Ser	Ser	Thr	Met	Asp	Ser	Gln	Met	Leu	Ala	Thr	Ser	Ser	Met	Asp	
49					54					59					64	
tcc	caa	atg	cta	gcg	tcc	aac	acc	atg	gac	tcc	cag	atg	cta	gca	tcc	240
Ser	Gln	Met	Leu	Ala	Ser	Asn	Thr	Met	Asp	Ser	Gln	Met	Leu	Ala	Ser	
65					70					75					80	
aac	acc	atg	gac	tcc	cag	atg	tta	gcg	tct	agc	acc	atg	gac	tcc	cag	288
Asn	Thr	Met	Asp	Ser	Gln	Met	Leu	Ala	Ser	Ser	Thr	Met	Asp	Ser	Gln	
81					86					91					96	
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Met	Leu	Ala	Thr	Ser	Ser	Met	Asp	Ser	Gln	Met	Leu	Ala	Thr	Ser	Ser	
97					102					107					112	
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Met	Asp	Ser	Gln	Met	Leu	Ala	Thr	Ser	Thr	Met	Asp	Ser	Gln	Met	Leu	
113					118					123					128	
gca	acc	agt	tcc	atg	gac	tcc	cag	atg	tta	gca	acc	agc	tcc	atg	gac	432
Ala	Thr	Ser	Ser	Met	Asp	Ser	Gln	Met	Leu	Ala	Thr	Ser	Ser	Met	Asp	
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Ser	Gln	Met	Leu	Ala	Thr	Ser	Ser	Met	Asp	Ser	Gln	Met	Leu	Ala	Thr	
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Ser	Ser	Met	Asp	Ser	Gln	Met	Leu	Ala	Thr	Ser	Thr	Met	Asp	Ser	Gln	
161					166					171					176	
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Met	Leu	Ala	Thr	Ser	Thr	Met	Asp	Ser	Gln	Met	Leu	Ala	Thr	Ser	Ser	
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Met	Asp	Ser	Gln	Met	Leu	Ala	Ser	Gly	Thr	Met	Asp	Ser	Gln	Met	Leu	
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gct	tct	ggc	acc	atg	gat	gct	cag	atg	tta	gcg	tct	ggg	acc	atg	gat	672
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Ala	Gln	Met	Leu	Ala	Ser	Ser	Thr	Gln	Asp	Ser	Ala	Met	Leu	Gly	Ser	
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Ala	Ser	Gln	Asp	Pro	Phe	Pro	Ala	Ala	Ile	Ile	Leu	Lys	Val	Ala	Leu		
133					138					143					148		
aat	atg	gca	aga	ggg	tta	aag	tat	ctg	cac	caa	gaa	aag	aaa	ctg	ctt	594	
Asn	Met	Ala	Arg	Gly	Leu	Lys	Tyr	Leu	His	Gln	Glu	Lys	Lys	Leu	Leu		
149					154					159					164		
cat	gga	gac	ata	aag	tct	tca	aat	gtt	gta	att	aaa	ggc	gat	ttt	gaa	642	
His	Gly	Asp	Ile	Lys	Ser	Ser	Asn	Val	Val	Ile	Lys	Gly	Asp	Phe	Glu		
165					170					175					180		
aca	att	aaa	atc	tgt	gat	gta	gga	gtc	tct	cta	cca	ctg	gat	gaa	aat	690	
Thr	Ile	Lys	Ile	Cys	Asp	Val	Gly	Val	Ser	Leu	Pro	Leu	Asp	Glu	Asn		
181					186					191					196		
atg	act	gtg	act	gac	cct	gag	gct	tgt	tac	att	ggc	aca	gag	cca	tgg	738	
Met	Thr	Val	Thr	Asp	Pro	Glu	Ala	Cys	Tyr	Ile	Gly	Thr	Glu	Pro	Trp		
197					202					207					212		
aaa	ccc	aaa	gaa	gct	gtg	gag	gag	aat	ggt	ggt	att	act	gac	aag	gca	786	
Lys	Pro	Lys	Glu	Ala	Val	Glu	Glu	Asn	Gly	Val	Ile	Thr	Asp	Lys	Ala		
213					218					223					228		
gac	ata	ttt	gcc	ttt	ggc	ctt	act	ttg	tgg	gaa	atg	atg	act	tta	tcg	834	
Asp	Ile	Phe	Ala	Phe	Gly	Leu	Thr	Leu	Trp	Glu	Met	Met	Thr	Leu	Ser		
229					234					239					244		
att	cca	cac	att	aat	ctt	tca	aat	gat	gat	gat	gat	gaa	gat	aaa	act	882	
Ile	Pro	His	Ile	Asn	Leu	Ser	Asn	Asp	Asp	Asp	Asp	Glu	Asp	Lys	Thr		
245					250					255					260		
ttt	gat	gaa	agt	gat	ttt	gat	gat	gaa	gca	tac	tat	gca	gcg	ttg	gga	930	
Phe	Asp	Glu	Ser	Asp	Phe	Asp	Asp	Glu	Ala	Tyr	Tyr	Ala	Ala	Leu	Gly		
261					266					271					276		
act	agg	cca	cct	att	aat	atg	gaa	gaa	ctg	gat	gaa	tca	tac	cag	aaa	978	
Thr	Arg	Pro	Pro	Ile	Asn	Met	Glu	Glu	Leu	Asp	Glu	Ser	Tyr	Gln	Lys		
277					282					287					292		
gta	att	gaa	ctc	ttc	tct	gta	tgc	act	aat	gaa	gac	cct	aaa	gat	cgt	1026	
Val	Ile	Glu	Leu	Phe	Ser	Val	Cys	Thr	Asn	Glu	Asp	Pro	Lys	Asp	Arg		

293	298	303	308	
cct tct gct gca cac att gtt gaa gct ctg gaa aca gat gtc tag tga				1074
Pro Ser Ala Ala His Ile Val Glu Ala Leu Glu Thr Asp Val *				
309	314	319		
tcattctcagc tgaagtgtgg cttgcataaa taactgttta ttccaaaata tttacatagt				1134
tactatcagt agttattaga ctctaaaatt ggcataattg aggaccatag tttcttggtta				1194
acatatggat aactatttct aatatgaaat atgcttatat tggctataag cacttggaat				1254
tgtactgggt tttctgtaaa gttttagaaa ctagctacat aagtactttg atactgctca				1314
tgctgactta aaacactagc agtaaaacgc tgtaaactgt aacattaaat tgaatgacca				1374
ttacttttat taatgatctt tcttaaatat tctatatattt aatggatcta ctgacattag				1434
cactttgtac agtacaaaat aaagtctaca tttgtttaaa acaaaaaaaaa aaaaaaaaaa				1494
ttgcgggccgc tctagagtat ccctcaaaga ggccaagct tacgcgtacc cagctttctt				1554
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cagactgctg cagccctaac cttcccaggg ctcagctctt tggagctgcc cattcctccg				180
gctgcgagaa aggacgcgcg ccctgcgctg ggcgaagaaa agaagcaaaa cttgtcggga				240
gggtttcgtc atcaacctcc ttcccgcaaa cctaaacctc ctgccggggc catccctaga				300
cagaggaaag ttctgcaga gccgaccagc cctagtggat ctggggcagg cagcggcgct				360
ggctgtggaa ttagatctgt tttgaacca gtggagcgca tcgctggggc tcggaagtca				420
ccgtccgcgg gcaccgggtt ggcgctgccc gagtggaaac gacagtttgc gagcctcggc				480
tgcaagtggc ctctcctccc cgcggttggt gttcagtgtc gggtgagggc tgcgagtgtg				540
gcaagttgca aagagagcct cagaggtccg aagagcgctg cgctcctact cgcgttcgct				600

tcttctctctt ctcggttccc tactgtgaaa tcgcagcgac atttacaag gcctccgggt	660
cctaccgaga ccgatccgca gcgtttggcc cggtcgcgcc tattgcatcg ggagcccccg	720
agcaccggcg aaggactggc ggggtgggta gggaggtggc ggcggcggc atg gcg Met Ala	775
	1
agg ttc ccg aag gcc gac ctg gcc gct gca gga gtt atg tta ctt tgc Arg Phe Pro Lys Ala Asp Leu Ala Ala Gly Val Met Leu Leu Cys 3 8 13 18	823
cac ttc ttc acg gac cag ttt cag ttc gcc gat ggg aaa ccc gga gac His Phe Phe Thr Asp Gln Phe Gln Phe Ala Asp Gly Lys Pro Gly Asp 19 24 29 34	871
caa atc ctt gat tgg cag tat gga gtt act cag gcc ttc cct cac aca Gln Ile Leu Asp Trp Gln Tyr Gly Val Thr Gln Ala Phe Pro His Thr 35 40 45 50	919
gag gag gag gtg gaa gtt gat tca cac gcg tac agc cac agg tgg aaa Glu Glu Glu Val Glu Val Asp Ser His Ala Tyr Ser His Arg Trp Lys 51 56 61 66	967
aga aac ttg gac ttt ctc aag gcg gta gac acg aac cga gca agc gtc Arg Asn Leu Asp Phe Leu Lys Ala Val Asp Thr Asn Arg Ala Ser Val 67 72 77 82	1015
ggc caa gac tct cct gag ccc aga agc ttc aca gac ctg ctg ctg gat Gly Gln Asp Ser Pro Glu Pro Arg Ser Phe Thr Asp Leu Leu Leu Asp 83 88 93 98	1063
gat ggg cag gac aat aac act cag atc gag gag gat aca gac cac aat Asp Gly Gln Asp Asn Asn Thr Gln Ile Glu Glu Asp Thr Asp His Asn 99 104 109 114	1111
tac tat ata tct cga ata tat ggt cca tct gat tct gcc agc cgg gat Tyr Tyr Ile Ser Arg Ile Tyr Gly Pro Ser Asp Ser Ala Ser Arg Asp 115 120 125 130	1159
tta tgg gtg aac ata gac caa atg gaa aaa gat aaa gtg aag att cat Leu Trp Val Asn Ile Asp Gln Met Glu Lys Asp Lys Val Lys Ile His 131 136 141 146	1207
gga ata ttg tcc aat act cat cgg caa gct gca aga gtg aat ctg tcc Gly Ile Leu Ser Asn Thr His Arg Gln Ala Ala Arg Val Asn Leu Ser 147 152 157 162	1255
ttc gat ttt cca ttt tat ggc cac ttc cta cgt gaa atc act gtg gca Phe Asp Phe Pro Phe Tyr Gly His Phe Leu Arg Glu Ile Thr Val Ala 163 168 173 178	1303
acc ggg ggt ttc ata tac act gga gaa gtc gta cat cga atg cta aca Thr Gly Gly Phe Ile Tyr Thr Gly Glu Val Val His Arg Met Leu Thr 179 184 189 194	1351
gcc aca cag tac ata gca cct tta atg gca aat ttc gat ccc agt gta	1399

Ala Thr Gln Tyr Ile	Ala Pro Leu Met Ala Asn Phe Asp Pro Ser Val	
195	200	205 210
tcc aga aat tca act gtc aga tat ttt gat aat ggc aca gca ctt gtg		1447
Ser Arg Asn Ser Thr Val Arg Tyr Phe Asp Asn Gly Thr Ala Leu Val		
211	216	221 226
gtc cag tgg gac cat gta cat ctc cag gat aat tat aac ctg gga agc		1495
Val Gln Trp Asp His Val His Leu Gln Asp Asn Tyr Asn Leu Gly Ser		
227	232	237 242
ttc aca ttc cag gca acc ctg ctc atg gat gga cga atc atc ttt gga		1543
Phe Thr Phe Gln Ala Thr Leu Leu Met Asp Gly Arg Ile Ile Phe Gly		
243	248	253 258
tac aaa gaa att cct gtc ttg gtc aca cag ata agt tca acc aat cat		1591
Tyr Lys Glu Ile Pro Val Leu Val Thr Gln Ile Ser Ser Thr Asn His		
259	264	269 274
cca gtg aaa gtc gga ctg tcc gat gca ttt gtc gtt gtc cac agg atc		1639
Pro Val Lys Val Gly Leu Ser Asp Ala Phe Val Val Val His Arg Ile		
275	280	285 290
caa caa att ccc aat gtt cga aga aga aca att tat gaa tac cac cga		1687
Gln Gln Ile Pro Asn Val Arg Arg Arg Thr Ile Tyr Glu Tyr His Arg		
291	296	301 306
gta gag cta caa atg tca aaa att acc aac att tcg gct gtg gag atg		1735
Val Glu Leu Gln Met Ser Lys Ile Thr Asn Ile Ser Ala Val Glu Met		
307	312	317 322
acc cca tta ccc aca tgc ctc cag ttt aac aga tgt ggc ccc tgt gta		1783
Thr Pro Leu Pro Thr Cys Leu Gln Phe Asn Arg Cys Gly Pro Cys Val		
323	328	333 338
tct tct cag att ggc ttc aac tgc agt tgg tgt agt aaa ctt caa aga		1831
Ser Ser Gln Ile Gly Phe Asn Cys Ser Trp Cys Ser Lys Leu Gln Arg		
339	344	349 354
tgt tcc agt gga ttt gat cgt cat cgg cag gac tgg gtg gac agt gga		1879
Cys Ser Ser Gly Phe Asp Arg His Arg Gln Asp Trp Val Asp Ser Gly		
355	360	365 370
tgc cct gaa gag tca aaa gag aag atg tgt gag aat aca gaa cca gtg		1927
Cys Pro Glu Glu Ser Lys Glu Lys Met Cys Glu Asn Thr Glu Pro Val		
371	376	381 386
gaa act tct tct cga acc acc aca acc ata gga gcg aca acc acc cag		1975
Glu Thr Ser Ser Arg Thr Thr Thr Thr Ile Gly Ala Thr Thr Thr Gln		
387	392	397 402
ttc agg gtc cta act acc acc aga aga gca gtg act tct cag ttt ccc		2023
Phe Arg Val Leu Thr Thr Thr Arg Arg Ala Val Thr Ser Gln Phe Pro		
403	408	413 418
acc agc ctc cct aca gaa gat gat acc aag ata gca cta cat cta aaa		2071
Thr Ser Leu Pro Thr Glu Asp Asp Thr Lys Ile Ala Leu His Leu Lys		

419	424	429	434	
gat aat gga gct tct aca gat gac agt gca gct gag aag aaa ggg gga				2119
Asp Asn Gly Ala Ser Thr Asp Asp Ser Ala Ala Glu Lys Lys Gly Gly				
435	440	445	450	
acc ctc cac gct ggc ctc atc gtt gga atc ctc atc ctg gtc ctc att				2167
Thr Leu His Ala Gly Leu Ile Val Gly Ile Leu Ile Leu Val Leu Ile				
451	456	461	466	
gta gcc aca gcc att ctt gtg aca gtc tat atg tat cac cac cat gta				2215
Val Ala Thr Ala Ile Leu Val Thr Val Tyr Met Tyr His His His Val				
467	472	477	482	
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Leu Arg Pro Leu *				
483				

ttcat 2275

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cagactgctg cagccctaac cttcccagg ctcagctctt tggagctgcc cattcctccg	180
gctgcgagaa aggacgcgcg ccctgcgtcg ggcgaagaaa agaagcaaaa cttgtcggga	240
gggtttcgtc atcaacctcc ttcccgcaaa cctaaacctc ctgccggggc catccctaga	300
cagaggaaag ttctgcaga gccgaccagc cctagtggat ctggggcagg cagcggcgct	360
ggctgtggaa ttagatctgt tttgaacca gtggagcgca tcgctggggc tcggaagtca	420
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tgcaagtggc ctctctccc cgcggttgtt gttcagtgtc gggtgagggc tgcgagtgtg	540
gcaagttgca aagagagcct cagaggtccg aagagcgctg cgctcctact cgcgttcgct	600
tcttctctt ctcggttccc tactgtgaaa tcgcagcgac atttaciaag gcctccgggt	660
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agcaccggcg aaggactggc ggggtgggta gggaggtggc ggcggcggc	atg gcg Met Ala 1	775
agg ttc ccg aag gcc gac ctg gcc gct gca gga gtt atg tta ctt tgc Arg Phe Pro Lys Ala Asp Leu Ala Ala Ala Gly Val Met Leu Leu Cys 3 8 13 18		823
cac ttc ttc acg gac cag ttt cag ttc gcc gat ggg aaa ccc gga gac His Phe Phe Thr Asp Gln Phe Gln Phe Ala Asp Gly Lys Pro Gly Asp 19 24 29 34		871
caa atc ctt gat tgg cag tat gga gtt act cag gcg ttc cct cac aca Gln Ile Leu Asp Trp Gln Tyr Gly Val Thr Gln Ala Phe Pro His Thr 35 40 45 50		919
gag gag gag gtg gaa gtt gat tca cac gcg tac agc cac agg tgg aaa Glu Glu Glu Val Glu Val Asp Ser His Ala Tyr Ser His Arg Trp Lys 51 56 61 66		967
aga aac ttg gac ttt ctg aag gcg gta gac acg aac cga gca agc gtc Arg Asn Leu Asp Phe Leu Lys Ala Val Asp Thr Asn Arg Ala Ser Val 67 72 77 82		1015
ggc caa gac tct cct gag ccc aga agc ttc aca gac ctg ctg ctg gat Gly Gln Asp Ser Pro Glu Pro Arg Ser Phe Thr Asp Leu Leu Leu Asp 83 88 93 98		1063
gat ggg cag gac aat aac act cag atc gag gag gat aca gac cac aat Asp Gly Gln Asp Asn Asn Thr Gln Ile Glu Glu Asp Thr Asp His Asn 99 104 109 114		1111
tac tat ata tct cga ata tat ggt cca tct gat tct gcc agc cgg gat Tyr Tyr Ile Ser Arg Ile Tyr Gly Pro Ser Asp Ser Ala Ser Arg Asp 115 120 125 130		1159
tta tgg gtg aac ata gac caa atg gaa aaa gat aaa gtg aag att cat Leu Trp Val Asn Ile Asp Gln Met Glu Lys Asp Lys Val Lys Ile His 131 136 141 146		1207
gga ata ttg tcc aat act cat cgg caa gct gca aga gtg aat ctg tcc Gly Ile Leu Ser Asn Thr His Arg Gln Ala Ala Arg Val Asn Leu Ser 147 152 157 162		1255
ttc gat ttt cca ttt tat ggc cac ttc cta cgt gaa atc act gtg gca Phe Asp Phe Pro Phe Tyr Gly His Phe Leu Arg Glu Ile Thr Val Ala 163 168 173 178		1303
acc ggg ggt ttc ata tac act gga gaa gtc gta cat cga atg cta aca Thr Gly Gly Phe Ile Tyr Thr Gly Glu Val Val His Arg Met Leu Thr 179 184 189 194		1351
gcc aca cag tac ata gca cct tta atg gca aat ttc gat ccc agt gta Ala Thr Gln Tyr Ile Ala Pro Leu Met Ala Asn Phe Asp Pro Ser Val 195 200 205 210		1399
tcc aga aat tca act gtc aga tat ttt gat aat ggc aca gca ctt gtg		1447

Ser Arg Asn Ser Thr Val Arg Tyr Phe Asp Asn Gly Thr Ala Leu Val	
211 216 221 226	
gtc cag tgg gac cat gta cat ctc cag gat aat tat aac ctg gga agc	1495
Val Gln Trp Asp His Val His Leu Gln Asp Asn Tyr Asn Leu Gly Ser	
227 232 237 242	
ttc aca ttc cag gca acc ctg ctc atg gat gga cga atc atc ttt gga	1543
Phe Thr Phe Gln Ala Thr Leu Leu Met Asp Gly Arg Ile Ile Phe Gly	
243 248 253 258	
tac aaa gaa att cct gtc ttg gtc aca cag ata agt tca acc aat cat	1591
Tyr Lys Glu Ile Pro Val Leu Val Thr Gln Ile Ser Ser Thr Asn His	
259 264 269 274	
cca gtg aaa gtc gga ctg tcc gat gca ttt gtc gtt gtc cac agg atc	1639
Pro Val Lys Val Gly Leu Ser Asp Ala Phe Val Val Val His Arg Ile	
275 280 285 290	
caa caa att ccc aat gtt cga aga aga aca att tat gaa tac cac cga	1687
Gln Gln Ile Pro Asn Val Arg Arg Arg Thr Ile Tyr Glu Tyr His Arg	
291 296 301 306	
gta gag cta caa atg tca aaa att acc aac att tcg gct gtg gag atg	1735
Val Glu Leu Gln Met Ser Lys Ile Thr Asn Ile Ser Ala Val Glu Met	
307 312 317 322	
acc cca tta ccc aca tgc ctc cag ttt aac aga tgt ggc ccc tgt gta	1783
Thr Pro Leu Pro Thr Cys Leu Gln Phe Asn Arg Cys Gly Pro Cys Val	
323 328 333 338	
tct tct cag att ggc ttc aac tgc agt tgg tgt agt aaa ott caa aga	1831
Ser Ser Gln Ile Gly Phe Asn Cys Ser Trp Cys Ser Lys Leu Gln Arg	
339 344 349 354	
tgt tcc agt gga ttt gat cgt cat cgg cag gac tgg gtg gac agt gga	1879
Cys Ser Ser Gly Phe Asp Arg His Arg Gln Asp Trp Val Asp Ser Gly	
355 360 365 370	
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Cys Pro Glu Glu Ser Lys Glu Lys Met Cys Glu Asn Thr Glu Pro Val	
371 376 381 386	
gaa act tct tct cga acc acc aca acc ata gga gcg aca acc acc cag	1975
Glu Thr Ser Ser Arg Thr Thr Thr Thr Ile Gly Ala Thr Thr Thr Gln	
387 392 397 402	
ttc agg gtc cta act acc acc aga aga gca gtg act tct cag ttt ccc	2023
Phe Arg Val Leu Thr Thr Thr Arg Arg Ala Val Thr Ser Gln Phe Pro	
403 408 413 418	
acc agc ctc cct aca gaa gat gat acc aag ata gca cta cat cta aaa	2071
Thr Ser Leu Pro Thr Glu Asp Asp Thr Lys Ile Ala Leu His Leu Lys	
419 424 429 434	
gat aat gga gct tct aca gat gac agt gca gct gag aag aaa ggg gga	2119
Asp Asn Gly Ala Ser Thr Asp Asp Ser Ala Ala Glu Lys Lys Gly Gly	

435	440	445	450	
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Thr Leu His Ala Gly Leu Ile Ile Gly Ile Leu Ile Leu Val Leu Ile				
451	456	461	466	
gta gcc aca gcc att ctt gtg aca gtc tat atg tat cac cac cca aca				2215
Val Ala Thr Ala Ile Leu Val Thr Val Tyr Met Tyr His His Pro Thr				
467	472	477	482	
tca gca gcc agc atc ttc ttt att gag aga cgc cca agc aga tgg cct				2263
Ser Ala Ala Ser Ile Phe Phe Ile Glu Arg Arg Pro Ser Arg Trp Pro				
483	488	493	498	
gcg atg aag ttt aga aga ggc tct gga cat cct gcc tat gct gaa gtt				2311
Ala Met Lys Phe Arg Arg Gly Ser Gly His Pro Ala Tyr Ala Glu Val				
499	504	509	514	
gaa cca gtt gga gag aaa gaa ggc ttt att gta tca gag cag tgc taa				2359
Glu Pro Val Gly Glu Lys Glu Gly Phe Ile Val Ser Glu Gln Cys *				
515	520	525	530	
aatttctagg acagaacaac accagtactg gtttacaggt gttaagacta aaattttgcc				2419
tataccttta agacaaacaa acaaacacac acacaaacaa gctctaagct gctgtagcct				2479
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cagccccctcg ccccccggcg cgatcgacag tctcgccagc gtctcctctg ccaaaaccca 240

gggctggaag atg tgg cag ccg gcc acg gag cgc ctg cag cac ttt cag 289
Met Trp Gln Pro Ala Thr Glu Arg Leu Gln His Phe Gln
1 5 10

acc atg ctg aag tct aaa ttg aat gtc tta aca ctg aaa aag gaa cct 337
Thr Met Leu Lys Ser Lys Leu Asn Val Leu Thr Leu Lys Lys Glu Pro
14 19 24 29

ctc cca gcg gtc atc ttc cat gag ccg gag gcc att gag ctg tgc acg 385
Leu Pro Ala Val Ile Phe His Glu Pro Glu Ala Ile Glu Leu Cys Thr
30 35 40 45

acc aca ccg ctg atg aag aca agg act cac agt ggc tgc aag gtt acc 433
Thr Thr Pro Leu Met Lys Thr Arg Thr His Ser Gly Cys Lys Val Thr
46 51 56 61

tac ctg ggc aaa gtc tcc acc act ggc atg cag ttt ttg tca ggc tgc 481
Tyr Leu Gly Lys Val Ser Thr Thr Gly Met Gln Phe Leu Ser Gly Cys
62 67 72 77

aca gaa aag cca gtc att gag ctc tgg aag aag cac acg cta gcc cga 529
Thr Glu Lys Pro Val Ile Glu Leu Trp Lys Lys His Thr Leu Ala Arg
78 83 88 93

gag gat gtc ttt ccg gcc aat gcc ctc ctg gaa atc cgg cca ttc caa 577
Glu Asp Val Phe Pro Ala Asn Ala Leu Leu Glu Ile Arg Pro Phe Gln
94 99 104 109

gtt tgg ctc cat cat ctc gac cac aaa ggg gag gcc aca gtg cac atg 625
Val Trp Leu His His Leu Asp His Lys Gly Glu Ala Thr Val His Met
110 115 120 125

gat acc ttc cag gtg gcc cgc atc gcc tac tgc acc gcc gac cac aac 673
Asp Thr Phe Gln Val Ala Arg Ile Ala Tyr Cys Thr Ala Asp His Asn
126 131 136 141

gtg agc ccc aac atc ttc gcc tgg gtc tac agg gag atc aat gat gac 721
Val Ser Pro Asn Ile Phe Ala Trp Val Tyr Arg Glu Ile Asn Asp Asp
142 147 152 157

ctg tcc tac cag atg gac tgc cac gcc gtg gag tgc gag agc aag ctc 769
Leu Ser Tyr Gln Met Asp Cys His Ala Val Glu Cys Glu Ser Lys Leu
158 163 168 173

gag gcc aag aaa ctg gcc cac gcc atg atg gag gcc ttc agg aag act 817
Glu Ala Lys Lys Leu Ala His Ala Met Met Glu Ala Phe Arg Lys Thr
174 179 184 189

ttc cac agt atg aag agc gac ggg cgg atc cac agc aac agc tcc tcc 865
Phe His Ser Met Lys Ser Asp Gly Arg Ile His Ser Asn Ser Ser Ser
190 195 200 205

gaa gag gtt tcc cag gaa ttg gaa tcc gat gat ggc tga atgaacttga 914
Glu Glu Val Ser Gln Glu Leu Glu Ser Asp Asp Gly *
206 211 216

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 aagagcaatt ctaaattctaa agaaatgtat cattaaagta attacgttac attgaaaaaa 1094
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 ccatagcagc aggaccagc atg gcc tct gct gcc tct gtg acc agc ctg gca 472
 Met Ala Ser Ala Ala Ser Val Thr Ser Leu Ala
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 Asp Glu Val Asn Cys Pro Ile Cys Gln Gly Thr Leu Arg Glu Pro Val
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 act atc gac tgc ggc cac aac ttc tgc cgg gcc tgc ctt acc cgc tac 568
 Thr Ile Asp Cys Gly His Asn Phe Cys Arg Ala Cys Leu Thr Arg Tyr
 28 33 38 43
 tgt gag ata cca ggc cca gac ctg gag gag tcc cct act tgc cca ctc 616
 Cys Glu Ile Pro Gly Pro Asp Leu Glu Glu Ser Pro Thr Cys Pro Leu
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 tgc aaa gaa ccc ttc cgt cct ggg agc ttc cgg ccc aac tgg cag ctg 664
 Cys Lys Glu Pro Phe Arg Pro Gly Ser Phe Arg Pro Asn Trp Gln Leu
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gct aac gtg gtg gag aac att gag cgc ctc cag ctg gtg tcc aca ctg	712
Ala Asn Val Val Glu Asn Ile Glu Arg Leu Gln Leu Val Ser Thr Leu	
76 81 86 91	
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Gly Leu Gly Glu Glu Asp Val Cys Gln Glu His Gly Glu Lys Ile Tyr	
92 97 102 107	
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Phe Phe Cys Glu Asp Asp Glu Met Gln Leu Cys Val Val Cys Arg Glu	
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Ala Gly Glu His Ala Thr His Thr Met Arg Phe Leu Glu Asp Ala Ala	
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gct ccc tat agg gaa caa atc cat aag tgt ctt aaa tgt cta aga aaa	904
Ala Pro Tyr Arg Glu Gln Ile His Lys Cys Leu Lys Cys Leu Arg Lys	
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Gln Val Leu Leu Thr Gln Val Ser Thr Lys Arg Gln Gln Val Ile Ser	
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Ile Glu Glu Leu Glu Glu Lys Asn Glu Arg Pro Ala Arg Glu Leu Leu	
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Lys Pro Val Ala Val Ser Pro Glu Leu Gly Gln Arg Ile Arg Asp Phe	
268 273 278 283	
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284 289 294 299	

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Pro Gln Thr Ser His Pro Lys Leu Leu Leu Ser Glu Asp His Gln Arg	
316 321 326 331	
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Ala Gln Phe Ser Tyr Lys Trp Gln Asn Ser Pro Asp Asn Pro Gln Arg	
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Arg His Thr Trp Val Val Ser Ile Asp Leu Ala His Gly Gly Ser Cys	
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Thr Val Gly Val Val Ser Glu Asp Val Gln Arg Lys Gly Glu Leu Arg	
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Leu Arg Pro Glu Glu Gly Val Trp Ala Val Arg Leu Ala Trp Gly Phe	
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Val Ser Ala Leu Gly Ser Phe Pro His Thr Ala Asp Pro Glu Gly Ala	
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 Met Gly Asp Lys Asp Asp Asp Asp Asp Asp Ala Asp Glu Lys Met
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 Gln Ser Ser Gly Ile Pro Asn Gly Gly His Ile Arg Gln Glu Ser Gln
 17 22 27 32
 gaa cag agt gag gtg gac cat gga gat ttt gag atg gtg tct gag tct 264
 Glu Gln Ser Glu Val Asp His Gly Asp Phe Glu Met Val Ser Glu Ser
 33 38 43 48

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Met	Val	Leu	Glu	Thr	Ala	Glu	Asn	Val	Asn	Asn	Gly	Asn	Pro	Ser	Pro	
49					54					59					64	
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Leu	Glu	Ala	Leu	Leu	Ala	Gly	Ala	Glu	Gly	Phe	Pro	Pro	Met	Leu	Asp	
65					70					75					80	
atc	cca	cct	gat	gca	gat	gac	gag	acc	atg	gtt	gaa	cta	gcc	att	gcc	408
Ile	Pro	Pro	Asp	Ala	Asp	Asp	Glu	Thr	Met	Val	Glu	Leu	Ala	Ile	Ala	
81					86					91					96	
ctg	agc	ctg	cag	cag	gac	caa	caa	ggc	agc	agc	agc	agt	gcc	ctg	ggc	456
Leu	Ser	Leu	Gln	Gln	Asp	Gln	Gln	Gly	Ser	Ser	Ser	Ser	Ala	Leu	Gly	
97					102					107					112	
ctg	cag	agc	ctg	gga	ctg	tcc	ggc	cag	gca	ccc	agc	tct	tcc	tct	ctg	504
Leu	Gln	Ser	Leu	Gly	Leu	Ser	Gly	Gln	Ala	Pro	Ser	Ser	Ser	Ser	Leu	
113					118					123					128	
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Asp	Ala	Gly	Thr	Leu	Ser	Asp	Thr	Thr	Ala	Ser	Ala	Pro	Ala	Ser	Asp	
129					134					139					144	
gac	gag	ggc	agt	aca	gca	gcg	aca	gat	ggt	tct	acc	ctt	cgg	acc	tct	600
Asp	Glu	Gly	Ser	Thr	Ala	Ala	Thr	Asp	Gly	Ser	Thr	Leu	Arg	Thr	Ser	
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cct	gct	gac	cac	ggt	ggt	agt	gtg	ggc	tcg	gag	agc	ggg	ggc	agt	gca	648
Pro	Ala	Asp	His	Gly	Gly	Ser	Val	Gly	Ser	Glu	Ser	Gly	Gly	Ser	Ala	
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Val	Asp	Ser	Val	Ala	Gly	Glu	His	Ser	Val	Ser	Gly	Arg	Ser	Ser	Ala	
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tat	ggc	gat	gct	aca	gct	gag	ggg	cat	ccg	gct	gga	cca	gga	agt	gtc	744
Tyr	Gly	Asp	Ala	Thr	Ala	Glu	Gly	His	Pro	Ala	Gly	Pro	Gly	Ser	Val	
193					198					203					208	
agc	tca	agc	act	gga	gcc	atc	agc	acc	acc	act	ggg	cac	cag	gag	gga	792
Ser	Ser	Ser	Thr	Gly	Ala	Ile	Ser	Thr	Thr	Thr	Gly	His	Gln	Glu	Gly	
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gat	ggc	tcc	gag	gga	gaa	gga	gaa	gga	gaa	act	gaa	gga	gat	gtc	cac	840
Asp	Gly	Ser	Glu	Gly	Glu	Gly	Glu	Gly	Glu	Thr	Glu	Gly	Asp	Val	His	
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Thr	Ser	Asn	Arg	Leu	His	Met	Val	Arg	Leu	Met	Leu	Leu	Glu	Arg	Leu	
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Pro Tyr Met Gln Val Ile Leu Met Leu Thr Thr Asp Leu Asp Gly Glu	
273 278 283 288	
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Asp Glu Lys Asp Lys Gly Ala Leu Asp Asn Leu Leu Ser Gln Leu Ile	
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Ala Glu Leu Gly Met Asp Lys Lys Asp Val Ser Lys Lys Asn Glu Arg	
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agc gcc ctg aat gaa gtc cat ctg gta gta atg aga ctc ctg agt gtc	1128
Ser Ala Leu Asn Glu Val His Leu Val Val Met Arg Leu Leu Ser Val	
321 326 331 336	
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Phe Met Ser Arg Thr Lys Ser Gly Ser Lys Ser Ser Ile Cys Glu Ser	
337 342 347 352	
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Ser Ser Leu Ile Ser Ser Ala Thr Ala Ala Ala Leu Leu Ser Ser Gly	
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Ala Val Asp Tyr Cys Leu His Val Leu Lys Ser Leu Leu Glu Tyr Trp	
369 374 379 384	
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Lys Ser Gln Gln Asn Asp Glu Glu Pro Val Ala Thr Ser Gln Leu Leu	
385 390 395 400	
aaa cca cat act acc tcc tcc cca cct gac atg agc cca ttc ttt ctc	1368
Lys Pro His Thr Thr Ser Ser Pro Pro Asp Met Ser Pro Phe Phe Leu	
401 406 411 416	
cgc cag tat gtg aag ggt cat gct gct gat gtg ttt gag gcc tat act	1416
Arg Gln Tyr Val Lys Gly His Ala Ala Asp Val Phe Glu Ala Tyr Thr	
417 422 427 432	
cag ctt cta aca gaa atg gta ctg agg ctt cct tac caa atc aaa aag	1464
Gln Leu Leu Thr Glu Met Val Leu Arg Leu Pro Tyr Gln Ile Lys Lys	
433 438 443 448	
att act gac acc aat tct cga atc cca cct cct gtc ttt gac cac tcg	1512
Ile Thr Asp Thr Asn Ser Arg Ile Pro Pro Pro Val Phe Asp His Ser	
449 454 459 464	
tgg ttt tac ttt ctc tcc gag tac ctc atg atc cag cag act cca ttt	1560
Trp Phe Tyr Phe Leu Ser Glu Tyr Leu Met Ile Gln Gln Thr Pro Phe	
465 470 475 480	
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Val Arg Arg Gln Val Arg Lys Leu Leu Leu Phe Ile Cys Gly Ser Lys	
481 486 491 496	
gag aag tac cgc cag ctc cgg gat ttg cac acc ctg gac tct cac gtg	1656

Glu Lys Tyr Arg Gln Leu Arg Asp Leu His Thr Leu Asp Ser His Val	
497 502 507 512	
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Arg Gly Ile Lys Lys Leu Leu Glu Glu Gln Gly Ile Phe Leu Arg Ala	
513 518 523 528	
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Ser Val Val Thr Ala Ser Ser Gly Ser Ala Leu Gln Tyr Asp Thr Leu	
529 534 539 544	
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Ile Ser Leu Met Glu His Leu Lys Ala Cys Ala Gly Ile Ala Ala Gln	
545 550 555 560	
cga acc atc aac tgg cag aaa ttc tgc atc aaa gat gac tcc gtc ctg	1848
Arg Thr Ile Asn Trp Gln Lys Phe Cys Ile Lys Asp Asp Ser Val Leu	
561 566 571 576	
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Tyr Phe Leu Leu Gln Val Ser Phe Leu Val Asp Glu Gly Val Ser Pro	
577 582 587 592	
gtg ctg ctg caa ctg ctc tcc tgt gct ctg tgc ggc agc aag gtg ctc	1944
Val Leu Leu Gln Leu Leu Ser Cys Ala Leu Cys Gly Ser Lys Val Leu	
593 598 603 608	
gct gca ctg gca gcc tct tcg gga tcc tcc agt gct tct tcc tcc tca	1992
Ala Ala Leu Ala Ala Ser Ser Gly Ser Ser Ser Ala Ser Ser Ser	
609 614 619 624	
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Ala Pro Val Ala Ala Ser Ser Gly Gln Ala Thr Thr Gln Ser Lys Ser	
625 630 635 640	
tcc act aaa aag agc aag aaa gaa gaa aaa aaa aag gag aaa gat ggt	2088
Ser Thr Lys Lys Ser Lys Lys Glu Glu Lys Lys Lys Glu Lys Asp Gly	
641 646 651 656	
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Glu Thr Ser Gly Ser Gln Glu Asp Gln Leu Cys Thr Ala Leu Val Asn	
657 662 667 672	
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Gln Leu Asn Lys Phe Ala Asp Lys Glu Thr Leu Ile Gln Phe Leu Arg	
673 678 683 688	
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Cys Phe Leu Leu Glu Ser Asn Ser Ser Ser Val Arg Trp Gln Ala His	
689 694 699 704	
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Cys Leu Thr Leu His Ile Tyr Arg Asn Ser Ser Lys Ser Gln Gln Glu	
705 710 715 720	
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753	758	763	768	
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Val Glu Ile Leu Arg Thr Gln Asn His Ile Leu Thr Asn His Pro Asn				
769	774	779	784	
tcg aac att tat aac act ttg tct ggc tta gtg gag ttt gat ggc tat				2520
Ser Asn Ile Tyr Asn Thr Leu Ser Gly Leu Val Glu Phe Asp Gly Tyr				
785	790	795	800	
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Tyr Leu Glu Ser Asp Pro Cys Leu Val Cys Asn Asn Pro Glu Val Pro				
801	806	811	816	
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Phe Cys Tyr Ile Lys Leu Ser Ser Ile Lys Val Asp Thr Arg Tyr Thr				
817	822	827	832	
acc acc cag cag gtt gtg aag ctc att ggc agt cac acc atc agc aaa				2664
Thr Thr Gln Gln Val Val Lys Leu Ile Gly Ser His Thr Ile Ser Lys				
833	838	843	848	
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Val Thr Val Lys Ile Gly Asp Leu Lys Arg Thr Lys Met Val Arg Thr				
849	854	859	864	
atc aac ctg tat tat aac aac cga acc gtg cag gcc atc gtg gag ttg				2760
Ile Asn Leu Tyr Tyr Asn Asn Arg Thr Val Gln Ala Ile Val Glu Leu				
865	870	875	880	
aaa aac aag cca gct cgc tgg cac aaa gcc aag aag gtt cag ctg acc				2808
Lys Asn Lys Pro Ala Arg Trp His Lys Ala Lys Lys Val Gln Leu Thr				
881	886	891	896	
cct gga cag aca gag gtg aag att gac ctg ccg ttg ccc att gtg gcc				2856
Pro Gly Gln Thr Glu Val Lys Ile Asp Leu Pro Leu Pro Ile Val Ala				
897	902	907	912	
tcc aat ctg atg att gag ttt gca gac ttc tat gaa aac tac cag gcc				2904
Ser Asn Leu Met Ile Glu Phe Ala Asp Phe Tyr Glu Asn Tyr Gln Ala				
913	918	923	928	
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Ser Thr Glu Thr Leu Gln Cys Pro Arg Cys Ser Ala Ser Val Pro Ala				
929	934	939	944	
aac cca gga gtc tgt ggc aac tgt gga gag aat gtg tac cag tgt cac				3000
Asn Pro Gly Val Cys Gly Asn Cys Gly Glu Asn Val Tyr Gln Cys His				
945	950	955	960	

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Lys Cys Arg Ser Ile Asn Tyr Asp Glu Lys Asp Pro Phe Leu Cys Asn	
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gcc tgt ggc ttc tgt aaa tat gcc cgc ttc gac ttc atg ctc tat gcc	3096
Ala Cys Gly Phe Cys Lys Tyr Ala Arg Phe Asp Phe Met Leu Tyr Ala	
977 982 987 992	
aag cct tgc tgt gca gtg gat ccc att gag aat gaa gaa gac cgg aag	3144
Lys Pro Cys Cys Ala Val Asp Pro Ile Glu Asn Glu Glu Asp Arg Lys	
993 998 1003 1008	
aag gct gta tcc aac atc aat aca ctt ttg gac aaa gct gat cga gtg	3192
Lys Ala Val Ser Asn Ile Asn Thr Leu Leu Asp Lys Ala Asp Arg Val	
1009 1014 1019 1024	
tat cat cag ctg atg gga cac cgg cca cag ctg gag aac ctg ctc tgc	3240
Tyr His Gln Leu Met Gly His Arg Pro Gln Leu Glu Asn Leu Leu Cys	
1025 1030 1035 1040	
aaa gtg aat gag gca gct cca gaa aag cca cag gat gac tca gga aca	3288
Lys Val Asn Glu Ala Ala Pro Glu Lys Pro Gln Asp Asp Ser Gly Thr	
1041 1046 1051 1056	
gca ggg ggc atc agc tcc act tct gcc agt gtg aat cgt tac atc ctg	3336
Ala Gly Gly Ile Ser Ser Thr Ser Ala Ser Val Asn Arg Tyr Ile Leu	
1057 1062 1067 1072	
cag ttg gct cag gag tat tgt gga gac tgc aag aac tct ttt gat gaa	3384
Gln Leu Ala Gln Glu Tyr Cys Gly Asp Cys Lys Asn Ser Phe Asp Glu	
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Ser Val Gln Pro Thr Phe Thr Ala Ser Gln Tyr Arg Ala Leu Ser Val	
1121 1126 1131 1136	
ctg ggc tgt ggc cac aca tcc tcc acc aag tgc tat ggc tgc gcc tcg	3576
Leu Gly Cys Gly His Thr Ser Ser Thr Lys Cys Tyr Gly Cys Ala Ser	
1137 1142 1147 1152	
gct gtc aca gaa cat tgt atc aca cta ctt cgg gcc ctg gcc acc aac	3624
Ala Val Thr Glu His Cys Ile Thr Leu Leu Arg Ala Leu Ala Thr Asn	
1153 1158 1163 1168	
cca gcc ttg agg cac atc ctt gtc tcc cag ggc ctt atc cgg gag ctc	3672
Pro Ala Leu Arg His Ile Leu Val Ser Gln Gly Leu Ile Arg Glu Leu	
1169 1174 1179 1184	

ttt gat tat aat ctt cgc cga ggg gct gcg gcc atg cgg gag gag gtc	3720
Phe Asp Tyr Asn Leu Arg Arg Gly Ala Ala Met Arg Glu Glu Val	
1185 1190 1195 1200	
cgc cag ctc atg tgc ctc cta act cga gac aac cca gaa gcc acc caa	3768
Arg Gln Leu Met Cys Leu Leu Thr Arg Asp Asn Pro Glu Ala Thr Gln	
1201 1206 1211 1216	
cag atg aat gac ctg att att ggc aag gtc tcc aca gcc ctg aag ggc	3816
Gln Met Asn Asp Leu Ile Ile Gly Lys Val Ser Thr Ala Leu Lys Gly	
1217 1222 1227 1232	
cac tgg gcc aac ccc gat ctg gca agt agc ctg cag tat gaa atg ctg	3864
His Trp Ala Asn Pro Asp Leu Ala Ser Ser Leu Gln Tyr Glu Met Leu	
1233 1238 1243 1248	
ctg ctg acg gat tct atc tcc aag gag gac agc tgc tgg gag ctc cgg	3912
Leu Leu Thr Asp Ser Ile Ser Lys Glu Asp Ser Cys Trp Glu Leu Arg	
1249 1254 1259 1264	
tta cgc tgt gct ctc agc ctt ttc ctc atg gct gtg aac att aag act	3960
Leu Arg Cys Ala Leu Ser Leu Phe Leu Met Ala Val Asn Ile Lys Thr	
1265 1270 1275 1280	
cct gtg gtg gtt gaa aac att acc ctc atg tgc ctg agg atc ttg cag	4008
Pro Val Val Val Glu Asn Ile Thr Leu Met Cys Leu Arg Ile Leu Gln	
1281 1286 1291 1296	
aag ctg ata aaa cca cct gct ccc act agc aag aag aac aag gat gtc	4056
Lys Leu Ile Lys Pro Pro Ala Pro Thr Ser Lys Lys Asn Lys Asp Val	
1297 1302 1307 1312	
ccc gtt gag gcc ctc acc acg gtg aag cca tac tgc aat gag atc cat	4104
Pro Val Glu Ala Leu Thr Thr Val Lys Pro Tyr Cys Asn Glu Ile His	
1313 1318 1323 1328	
gcc cag gct caa ctg tgg ctc aag aga gac ccc aag gca tcc tat gat	4152
Ala Gln Ala Gln Leu Trp Leu Lys Arg Asp Pro Lys Ala Ser Tyr Asp	
1329 1334 1339 1344	
gcc tgg aag aag tgt ctt cct atc aga ggg ata gat ggc aat ggg aaa	4200
Ala Trp Lys Lys Cys Leu Pro Ile Arg Gly Ile Asp Gly Asn Gly Lys	
1345 1350 1355 1360	
gcc ccc agc aaa tca gag ctc cgc cat ctc tat ttg act gag aag tat	4248
Ala Pro Ser Lys Ser Glu Leu Arg His Leu Tyr Leu Thr Glu Lys Tyr	
1361 1366 1371 1376	
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Val Trp Arg Trp Lys Gln Phe Leu Ser Arg Arg Gly Lys Arg Thr Ser	
1377 1382 1387 1392	
ccc ttg gat ctc aaa ctg ggg cat aac aac tgg ctg cga caa gtg ctt	4344
Pro Leu Asp Leu Lys Leu Gly His Asn Asn Trp Leu Arg Gln Val Leu	
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Phe Thr Pro Ala Thr Gln Ala Ala Arg Gln Ala Ala Cys Thr Ile Val	
1409	1414 1419 1424
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Glu Ala Leu Ala Thr Ile Pro Ser Arg Lys Gln Gln Val Leu Asp Leu	
1425	1430 1435 1440
ctt acc agt tac ctg gat gag ctg agc ata gct ggg gag tgt gca gct	4488
Leu Thr Ser Tyr Leu Asp Glu Leu Ser Ile Ala Gly Glu Cys Ala Ala	
1441	1446 1451 1456
gag tac ctg gct ctc tac cag aag ctc atc act tct gcg cac tgg aaa	4536
Glu Tyr Leu Ala Leu Tyr Gln Lys Leu Ile Thr Ser Ala His Trp Lys	
1457	1462 1467 1472
gtc tac ttg gca gct cgg gga gtc cta ccc tat gtg ggc aac ctc atc	4584
Val Tyr Leu Ala Ala Arg Gly Val Leu Pro Tyr Val Gly Asn Leu Ile	
1473	1478 1483 1488
acc aag gaa ata gct cgt ctg ctg gcc ctg gag gag gct acc ctg agt	4632
Thr Lys Glu Ile Ala Arg Leu Leu Ala Leu Glu Glu Ala Thr Leu Ser	
1489	1494 1499 1504
acc gat ctg cag cag ggt tat gcc ctt aaa agt ctc aca ggc ctt ctc	4680
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Ser Ser Phe Val Glu Val Glu Ser Ile Lys Arg His Phe Lys Ser Arg	
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Leu Val Gly Thr Val Leu Asn Gly Tyr Leu Cys Leu Arg Lys Leu Val	
1537	1542 1547 1552
gtg cag agg acc aag ctg atc gat gag acg cag gac atg ctg ctg gag	4824
Val Gln Arg Thr Lys Leu Ile Asp Glu Thr Gln Asp Met Leu Leu Glu	
1553	1558 1563 1568
atg ctg gag gac atg acc aca ggt aca gaa tca gaa acc aag gcc ttc	4872
Met Leu Glu Asp Met Thr Thr Gly Thr Glu Ser Glu Thr Lys Ala Phe	
1569	1574 1579 1584
atg gct gtg tgc att gag aca gcc aag cgc tac aat ctg gat gac tac	4920
Met Ala Val Cys Ile Glu Thr Ala Lys Arg Tyr Asn Leu Asp Asp Tyr	
1585	1590 1595 1600
cgg acc ccg gtg ttc atc ttc gag agg ctc tgc agc atc att tat cct	4968
Arg Thr Pro Val Phe Ile Phe Glu Arg Leu Cys Ser Ile Ile Tyr Pro	
1601	1606 1611 1616
gag gag aat gaa gtc act gag ttc ttt gtg acc ctg gag aag gat ccc	5016
Glu Glu Asn Glu Val Thr Glu Phe Phe Val Thr Leu Glu Lys Asp Pro	
1617	1622 1627 1632
caa caa gaa gac ttc tta cag ggc agg atg cct ggg aac ccg tat agc	5064
Gln Gln Glu Asp Phe Leu Gln Gly Arg Met Pro Gly Asn Pro Tyr Ser	

1633	1638	1643	1648	
agc aat gag cca ggc atc	ggg ccg ctg atg agg	gat ata aag aac aag	5112	
Ser Asn Glu Pro Gly Ile	Gly Pro Leu Met Arg	Asp Ile Lys Asn Lys		
1649	1654	1659	1664	
att tgc cag gac tgt gac	tta gtg gcc ctc ctg	gaa gat gac agt ggc	5160	
Ile Cys Gln Asp Cys Asp	Leu Val Ala Leu Leu	Glu Asp Asp Ser Gly		
1665	1670	1675	1680	
atg gag ctt cta gtg aac	aat aaa atc att agt	ttg gac ctt cct gtg	5208	
Met Glu Leu Leu Val Asn	Asn Lys Ile Ile Ser	Leu Asp Leu Pro Val		
1681	1686	1691	1696	
gct gaa gtt tac aag aaa	gtc tgg tgt acc acg	aat gag gga gag ccc	5256	
Ala Glu Val Tyr Lys Lys	Val Trp Cys Thr Thr	Asn Glu Gly Glu Pro		
1697	1702	1707	1712	
atg agg att gtt tat cgt	atg cgg ggg ctg ctg	ggc gat gcc aca gag	5304	
Met Arg Ile Val Tyr Arg	Met Arg Gly Leu Leu	Gly Asp Ala Thr Glu		
1713	1718	1723	1728	
gag ttc att gag tcc ctg	gac tct act aca gat	gaa gaa gaa gat gaa	5352	
Glu Phe Ile Glu Ser Leu	Asp Ser Thr Thr Asp	Glu Glu Glu Asp Glu		
1729	1734	1739	1744	
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Glu Glu Val Tyr Lys Met	Ala Gly Val Met Ala	Gln Cys Gly Gly Leu		
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Glu Cys Met Leu Asn Arg	Leu Ala Gly Ile Arg	Asp Phe Lys Gln Gly		
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Arg His Leu Leu Thr Val	Leu Leu Lys Leu Phe	Ser Tyr Cys Val Lys		
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Val Lys Val Asn Arg Gln	Gln Leu Val Lys Leu	Glu Met Asn Thr Leu		
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aac gtc atg ctg ggg acc	cta aac ctg gcc ctt	gta gct gaa caa gaa	5592	
Asn Val Met Leu Gly Thr	Leu Asn Leu Ala Leu	Val Ala Glu Gln Glu		
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agc aag gac agt ggg ggt	gca gct gtg gct gag	cag gtg ctt agc atc	5640	
Ser Lys Asp Ser Gly Gly	Ala Ala Val Ala Glu	Gln Val Leu Ser Ile		
1825	1830	1835	1840	
atg gag atc att cta gat	gag tcc aat gct gag	ccc ctg agt gag gac	5688	
Met Glu Ile Ile Leu Asp	Glu Ser Asn Ala Glu	Pro Leu Ser Glu Asp		
1841	1846	1851	1856	
aag ggc aac ctc ctc ctg	aca ggt gac aag gat	caa ctg gtg atg ctc	5736	
Lys Gly Asn Leu Leu Leu	Thr Gly Asp Lys Asp	Gln Leu Val Met Leu		
1857	1862	1867	1872	

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Leu Asp Gln Ile Asn Ser Thr Phe Val Arg Ser Asn Pro Ser Val Leu	
1873 1878 1883 1888	
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Gln Gly Leu Leu Arg Ile Ile Pro Tyr Leu Ser Phe Gly Glu Val Glu	
1889 1894 1899 1904	
aaa atg cag atc ttg gtg gag cga ttc aaa cca tac tgc aac ttt gat	5880
Lys Met Gln Ile Leu Val Glu Arg Phe Lys Pro Tyr Cys Asn Phe Asp	
1905 1910 1915 1920	
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Lys Tyr Asp Glu Asp His Ser Gly Asp Asp Lys Val Phe Leu Asp Cys	
1921 1926 1931 1936	
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Phe Cys Lys Ile Ala Ala Gly Ile Lys Asn Asn Ser Asn Gly His Gln	
1937 1942 1947 1952	
ctg aag gat ctg att ctc cag aag ggg atc acc cag aat gca ctt gac	6024
Leu Lys Asp Leu Ile Leu Gln Lys Gly Ile Thr Gln Asn Ala Leu Asp	
1953 1958 1963 1968	
tac atg aaa aag cac atc cct agc gcc aag aat ttg gat gcc gac atc	6072
Tyr Met Lys Lys His Ile Pro Ser Ala Lys Asn Leu Asp Ala Asp Ile	
1969 1974 1979 1984	
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Trp Lys Lys Phe Leu Ser Arg Pro Ala Leu Pro Phe Ile Leu Arg Leu	
1985 1990 1995 2000	
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Leu Arg Gly Leu Ala Ile Gln His Pro Gly Thr Gln Val Leu Ile Gly	
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Thr Asp Ser Ile Pro Asn Leu His Lys Leu Glu Gln Val Ser Ser Asp	
2017 2022 2027 2032	
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Glu Gly Ile Gly Thr Leu Ala Glu Asn Leu Leu Glu Ala Leu Arg Glu	
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cac cct gac gta aac aag aag att gac gca gcc cgc agg gag acc cgg	6312
His Pro Asp Val Asn Lys Lys Ile Asp Ala Ala Arg Arg Glu Thr Arg	
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Ala Glu Lys Lys Arg Met Ala Met Ala Met Arg Gln Lys Ala Leu Gly	
2065 2070 2075 2080	
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Thr Leu Gly Met Thr Thr Asn Glu Lys Gly Gln Val Val Thr Lys Thr	
2081 2086 2091 2096	

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Cys Cys Ile Cys Arg Glu Gly Tyr Lys Phe Gln Pro Thr Lys Val Leu	
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2129 2134 2139 2144	
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Lys Pro Arg Lys Gln Gln Gly Tyr Ser Thr Val Ser His Phe Asn Ile	
2145 2150 2155 2160	
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Val His Tyr Asp Cys His Leu Ala Ala Val Arg Leu Ala Arg Gly Arg	
2161 2166 2171 2176	
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Glu Glu Trp Glu Ser Ala Ala Leu Gln Asn Ala Asn Thr Lys Cys Asn	
2177 2182 2187 2192	
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Gly Leu Leu Pro Val Trp Gly Pro His Val Pro Glu Ser Ala Phe Ala	
2193 2198 2203 2208	
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Thr Cys Leu Ala Arg His Asn Thr Tyr Leu Gln Glu Cys Thr Gly Gln	
2209 2214 2219 2224	
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Arg Glu Pro Thr Tyr Gln Leu Asn Ile His Asp Ile Lys Leu Leu Phe	
2225 2230 2235 2240	
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Leu Arg Phe Ala Met Glu Gln Ser Phe Ser Ala Asp Thr Gly Gly Gly	
2241 2246 2251 2256	
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Gly Arg Glu Ser Asn Ile His Leu Ile Pro Tyr Ile Ile His Thr Val	
2257 2262 2267 2272	
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2273 2278 2283 2288	
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Phe Glu Val Asp Gly Pro Tyr Tyr Phe Thr Val Leu Ala Leu His Ile	
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Pro Gly Lys Leu Arg Ser Asp Ala Gly Leu Glu Ser Asp Thr Ala Met		
2 7 12 17		
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Lys Lys Gly Glu Thr Leu Arg Lys Gln Thr Glu Glu Lys Glu Lys Lys		
18 23 28 33		
gag aag cca aaa tct gat aag act gaa gag ata gca gaa gag gaa gaa		201
Glu Lys Pro Lys Ser Asp Lys Thr Glu Glu Ile Ala Glu Glu Glu Glu		
34 39 44 49		
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Thr Val Phe Pro Lys Ala Lys Gln Val Lys Lys Lys Ala Glu Pro Ser		
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Glu Val Asp Met Asn Ser Pro Lys Ser Lys Lys Ala Lys Lys Lys Glu		
66 71 76 81		
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Glu Pro Ser Gln Asn Asp Ile Ser Pro Lys Thr Lys Ser Leu Arg Lys		
82 87 92 97		
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Lys Lys Glu Pro Ile Glu Lys Lys Val Val Ser Ser Lys Thr Lys Lys		
98 103 108 113		
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Val Thr Lys Asn Glu Glu Pro Ser Glu Glu Glu Ile Asp Ala Pro Lys		
114 119 124 129		
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Pro Lys Lys Met Lys Lys Glu Lys Glu Met Asn Gly Glu Thr Arg Glu		
130 135 140 145		
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Lys Ser Pro Lys Leu Lys Asn Gly Phe Pro His Pro Glu Pro Asp Cys		
146 151 156 161		
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Asn Pro Ser Glu Ala Ala Ser Glu Glu Ser Asn Ser Glu Ile Glu Gln		
162 167 172 177		
gaa ata cct gtg gaa caa aaa gaa ggc gct ttc tct aat ttt ccc ata		633
Glu Ile Pro Val Glu Gln Lys Glu Gly Ala Phe Ser Asn Phe Pro Ile		
178 183 188 193		
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Ser Glu Glu Thr Ile Lys Leu Leu Lys Gly Arg Gly Val Thr Phe Leu		

194	199	204	209	
t t t c c t a t a c a a g c a a a g a c a t t c c a t c a t g t t t a c a g c g g g a a g g a c				729
P h e P r o I l e G l n A l a L y s T h r P h e H i s H i s V a l T y r S e r G l y L y s A s p				
210	215	220	225	
t t a a t t g c a c a g g c a c g g a c a g g a a c t g g g a a g a c a t t c t c c t t t g c c				777
L e u I l e A l a G l n A l a A r g T h r G l y T h r G l y L y s T h r P h e S e r P h e A l a				
226	231	236	241	
a t c c c t t t g a t t g a g a a a c t t c a t g g g g a a c t g c a a g a c a g g a a g a g a				825
I l e P r o L e u I l e G l u L y s L e u H i s G l y G l u L e u G l n A s p A r g L y s A r g				
242	247	252	257	
g g c c g t g c c c c t c a g g t a c t g t t c t t g c a c c t a c a a g a g a g t t g g c a				873
G l y A r g A l a P r o G l n V a l L e u V a l L e u A l a P r o T h r A r g G l u L e u A l a				
258	263	268	273	
a a t c a a g t a a g c a a a g a c t t c a g t g a c a t c a c a a a a a g c t g t c a g t g				921
A s n G l n V a l S e r L y s A s p P h e S e r A s p I l e T h r L y s L y s L e u S e r V a l				
274	279	284	289	
g c t t g t t t t a t g g t g g a a c t c c c t a t g g a g g t c a a t t t g a a c g c a t g				969
A l a C y s P h e T y r G l y G l y T h r P r o T y r G l y G l y G l n P h e G l u A r g M e t				
290	295	300	305	
a g g a a t g g g a t t g a t a t c c t g g t t g g a a c a c c a g g t c g t a t c a a a g a c				1017
A r g A s n G l y I l e A s p I l e L e u V a l G l y T h r P r o G l y A r g I l e L y s A s p				
306	311	316	321	
c a c a t a c a g a a t g g c a a a c t a g a t c t c a c c a a a c t t a a g c a t g t t g t c				1065
H i s I l e G l n A s n G l y L y s L e u A s p L e u T h r L y s L e u L y s H i s V a l V a l				
322	327	332	337	
c t g g a t g a a g t g g a c c a g a t g t t g a t a t g g g a t t t g c t g a t c a a g t g				1113
L e u A s p G l u V a l A s p G l n M e t L e u A s p M e t G l y P h e A l a A s p G l n V a l				
338	343	348	353	
g a a g a g a t t t a a g t g t g g c a t a c a a g a a a g a t t c t g a a g a c a a t c c c				1161
G l u G l u I l e L e u S e r V a l A l a T y r L y s L y s A s p S e r G l u A s p A s n P r o				
354	359	364	369	
c a a a c a t t g c t t t t c t g c a a c t t g c c c t c a t t g g g t a t t t a a t g t t				1209
G l n T h r L e u L e u P h e S e r A l a T h r C y s P r o H i s T r p V a l P h e A s n V a l				
370	375	380	385	
g c c a a g a a a t a c a t g a a a t c t a c a t a t g a a c a g g t g g a c c t g a t t g g t				1257
A l a L y s L y s T y r M e t L y s S e r T h r T y r G l u G l n V a l A s p L e u I l e G l y				
386	391	396	401	
a a a a a g a c t c a g a a a a c g g c a a t a c t g t g g a g c a t c t g g c t a t t a a g				1305
L y s L y s T h r G l n L y s T h r A l a I l e T h r V a l G l u H i s L e u A l a I l e L y s				
402	407	412	417	
t g c c a c t g g a c t c a g a g g g c a g c a g t t a t g g g g a t g t c a t c c g a g t a				1353
C y s H i s T r p T h r G l n A r g A l a A l a V a l I l e G l y A s p V a l I l e A r g V a l				
418	423	428	433	

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Tyr Ser Gly His Gln Gly Arg Thr Ile Ile Phe Cys Glu Thr Lys Lys	
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Glu Ala Gln Glu Leu Ser Gln Asn Ser Ala Ile Lys Gln Asp Ala Gln	
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Ser Leu His Gly Asp Ile Pro Gln Lys Gln Arg Glu Ile Thr Leu Lys	
466 471 476 481	
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Gly Phe Arg Asn Gly Ser Phe Gly Val Leu Val Ala Thr Asn Val Ala	
482 487 492 497	
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Ala Arg Gly Leu Asp Ile Pro Glu Val Asp Leu Val Ile Gln Ser Ser	
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Arg Ile Gly Val Pro Ser Ala Thr Glu Ile Ile Lys Ala Ser Ser Lys	
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Asp Ala Ile Arg Leu Leu Asp Ser Val Pro Pro Thr Ala Ile Ser His	
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ttc aaa caa tca gct gag aag ctg ata gag gag aag gga gct gtg gaa	1881
Phe Lys Gln Ser Ala Glu Lys Leu Ile Glu Glu Lys Gly Ala Val Glu	
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Gly Gly Phe Arg Gly Gln Arg Glu Gly Ser Arg Gly Phe Arg Gly Gln	
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Arg Asp Gly Asn Arg Arg Phe Arg Gly Gln Arg Glu Gly Ser Arg Gly	
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Pro Arg Gly Gln Arg Ser Gly Gly Gly Asn Lys Ser Asn Arg Ser Gln	
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Asn Lys Gly Gln Lys Arg Ser Phe Ser Lys Ala Phe Gly Gln *	
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Met Leu Ala Arg Arg Gln Arg Asp Pro Leu
1 5

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Gln Ala Leu Arg Arg Arg Asn Gln Glu Leu Lys Gln Gln Val Asp Ser
11 16 21 26

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Leu Leu Ser Glu Ser Gln Leu Lys Glu Ala Leu Glu Pro Asn Lys Arg
27 32 37 42

caa cat att tat caa aga tgt atc cag tta aag cag gca ata gat gaa 256
Gln His Ile Tyr Gln Arg Cys Ile Gln Leu Lys Gln Ala Ile Asp Glu
43 48 53 58

aat aaa aat gct ctt caa aaa tta agc aaa gct gat gaa tct gca cct 304
Asn Lys Asn Ala Leu Gln Lys Leu Ser Lys Ala Asp Glu Ser Ala Pro
59 64 69 74

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Val Ala Asn Tyr Asn Gln Arg Lys Glu Glu Glu His Thr Leu Leu Asp
75 80 85 90

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91 96 101 106

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107 112 117 122

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Ser Glu Asp Ser Glu Asp Ser Gly Gly Glu Glu Glu Asp Ala Glu Glu
123 128 133 138

gaa gag gaa gag aaa gag gaa aat gaa tct cac aaa tgg tca acc ggt 544

Glu Glu Glu Glu Lys	Glu Glu Asn Glu Ser His Lys Trp Ser Thr Gly	
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Glu Glu Tyr Ile Ala Val Gly Asp Phe Thr Ala Gln Val Gly Asp		
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ctt aca ttt aag aaa ggg gaa att ctc ctt gta att gaa aaa aaa cct		640
Leu Thr Phe Lys Lys Gly Glu Ile Leu Leu Val Ile Glu Lys Lys Pro		
171	176 181 186	
gat ggt tgg tgg ata gct aag gat gcc aaa gga aat gaa ggt ctt gtt		688
Asp Gly Trp Trp Ile Ala Lys Asp Ala Lys Gly Asn Glu Gly Leu Val		
187	192 197 202	
ccc aga acc tac cta gag cct tat agt gaa gaa gaa gaa ggc caa gaa		736
Pro Arg Thr Tyr Leu Glu Pro Tyr Ser Glu Glu Glu Glu Gly Gln Glu		
203	208 213 218	
tca agt gaa gag ggc agt gaa gaa gat gta gag gcg gtg gat gaa aca		784
Ser Ser Glu Glu Gly Ser Glu Glu Asp Val Glu Ala Val Asp Glu Thr		
219	224 229 234	
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Ala Asp Gly Ala Glu Val Lys Gln Arg Thr Asp Pro His Trp Ser Ala		
235	240 245 250	
gtt cag aaa gcg att tca gag gcg ggc atc ttc tgt ctt gtt aat cat		880
Val Gln Lys Ala Ile Ser Glu Ala Gly Ile Phe Cys Leu Val Asn His		
251	256 261 266	
gtc tcg ttt tgc tac cta ata gtt ctg atg cga aat agg atg gag act		928
Val Ser Phe Cys Tyr Leu Ile Val Leu Met Arg Asn Arg Met Glu Thr		
267	272 277 282	
gtg gaa gac acc aat gga tct gaa aca ggg ttc agg gca tgg aat gta		976
Val Glu Asp Thr Asn Gly Ser Glu Thr Gly Phe Arg Ala Trp Asn Val		
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cag agc aga gga cgt ata ttt ctg gtt tct aag cct gtg ctc cag cag		1024
Gln Ser Arg Gly Arg Ile Phe Leu Val Ser Lys Pro Val Leu Gln Gln		
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ata aac act gtt gat gtg tta act acg atg gga gct att cct gca ggg		1072
Ile Asn Thr Val Asp Val Leu Thr Thr Met Gly Ala Ile Pro Ala Gly		
315	320 325 330	
ttc agg cct tcc acg ctc tca cag ctt ctg gag gaa ggg aat caa ttt		1120
Phe Arg Pro Ser Thr Leu Ser Gln Leu Leu Glu Glu Gly Asn Gln Phe		
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cga gca aat tac ttc tta caa cca gag ctc atg cct tca caa ctg gcc		1168
Arg Ala Asn Tyr Phe Leu Gln Pro Glu Leu Met Pro Ser Gln Leu Ala		
347	352 357 362	
ttc aga gat ctg atg tgg gat gct aca gaa ggc act att agg tcg aga		1216
Phe Arg Asp Leu Met Trp Asp Ala Thr Glu Gly Thr Ile Arg Ser Arg		

363	368	373	378	
cca agt cgt att tca ttg att ctg aca tta tgg agc tgt aaa atg att				1264
Pro Ser Arg Ile Ser Leu Ile Leu Thr Leu Trp Ser Cys Lys Met Ile				
379	384	389	394	
cct ctt cca gga atg agc ata cag gtt ctc agc aga cat gta cgc ctc				1312
Pro Leu Pro Gly Met Ser Ile Gln Val Leu Ser Arg His Val Arg Leu				
395	400	405	410	
tgt cta ttt gat ggt aat aag gtt ctg agc aac att cat aca gtc aga				1360
Cys Leu Phe Asp Gly Asn Lys Val Leu Ser Asn Ile His Thr Val Arg				
411	416	421	426	
gcc aca tgg caa cct aaa aag ccc aaa aca tgg acc ttt tct ccc cag				1408
Ala Thr Trp Gln Pro Lys Lys Pro Lys Thr Trp Thr Phe Ser Pro Gln				
427	432	437	442	
gtt act cgc atc tta cca tgt ttg ctt gat ggt gat tgc ttt atc agg				1456
Val Thr Arg Ile Leu Pro Cys Leu Leu Asp Gly Asp Cys Phe Ile Arg				
443	448	453	458	
tct aat tct gca tct cca gat ctt gga ata tta ttt gaa ctt gga att				1504
Ser Asn Ser Ala Ser Pro Asp Leu Gly Ile Leu Phe Glu Leu Gly Ile				
459	464	469	474	
tct tat att cgc aat tca act ggt gaa aga gga gag tta agc tgt ggc				1552
Ser Tyr Ile Arg Asn Ser Thr Gly Glu Arg Gly Glu Leu Ser Cys Gly				
475	480	485	490	
tgg gtg ttt ctt aaa ctt ttt gat gcc agt gga gtt cct att cca gca				1600
Trp Val Phe Leu Lys Leu Phe Asp Ala Ser Gly Val Pro Ile Pro Ala				
491	496	501	506	
aaa act tat gag ctt ttc ttg aat ggt ggt act cct tat gaa aaa ggt				1648
Lys Thr Tyr Glu Leu Phe Leu Asn Gly Gly Thr Pro Tyr Glu Lys Gly				
507	512	517	522	
att gaa gtg gac cct tca ata tcc aga aga gca cac ggc agt gtt ttc				1696
Ile Glu Val Asp Pro Ser Ile Ser Arg Arg Ala His Gly Ser Val Phe				
523	528	533	538	
tac cag att atg aca atg aga agg cag cct caa ctt cta gtg aaa ctg				1744
Tyr Gln Ile Met Thr Met Arg Arg Gln Pro Gln Leu Leu Val Lys Leu				
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aga tcc ttg aac aga aga tca aga aat gta cta agt cta ctg cca gaa				1792
Arg Ser Leu Asn Arg Arg Ser Arg Asn Val Leu Ser Leu Leu Pro Glu				
555	560	565	570	
aca tta att gga aat atg tgt tct att cac ttg ttg ata ttt tat cga				1840
Thr Leu Ile Gly Asn Met Cys Ser Ile His Leu Leu Ile Phe Tyr Arg				
571	576	581	586	
caa att ctt gga gat gtg ctc ctg aaa gac agg atg agc ttg caa agt				1888
Gln Ile Leu Gly Asp Val Leu Leu Lys Asp Arg Met Ser Leu Gln Ser				
587	592	597	602	

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Thr Asp Leu Ile Ser His Pro Met Leu Ala Thr Phe Pro Met Leu Leu	
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Glu Gln Pro Asp Val Met Asp Ala Leu Arg Ser Ser Trp Ala Gly Lys	
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Glu Ser Thr Leu Lys Arg Ser Glu Lys Arg Asp Lys Glu Phe Leu Lys	
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Ser Thr Phe Leu Leu Val Tyr His Asp Cys Val Leu Pro Leu Leu His	
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Ser Thr Arg Leu Pro Pro Phe Arg Trp Ala Glu Glu Glu Thr Glu Thr	
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Ala Arg Trp Lys Val Ile Thr Asp Phe Leu Lys Gln Asn Gln Glu Asn	
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 Thr Met Ser Gly His Val Gly Phe Glu Ser Leu Pro Asp Gln Leu Val

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Glu Thr Gly Ile Gly Lys Ser Thr Leu Ile Asp Thr Leu Phe Asn Thr				
74	79	84	89	
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Asn Phe Glu Asp Tyr Glu Ser Ser His Phe Cys Pro Asn Val Lys Leu				
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Ser Tyr Gln Pro Ile Val Asp Tyr Ile Asp Ala Gln Phe Glu Ala Tyr				
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186	191	196	201	
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gtc cag ata tac cag ttc cca acg gat gat gac act att gct aag gtc				830
Val Gln Ile Tyr Gln Phe Pro Thr Asp Asp Asp Thr Ile Ala Lys Val				
234	239	244	249	
aac gct gca atg aat gga cag ttg ccg ttt gct gtt gtg gga agt atg				878
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Asp Glu Val Lys Val Gly Asn Lys Met Val Lys Ala Arg Gln Tyr Pro				
266	271	276	281	

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His Leu Lys Arg Leu His Gln Glu Glu Arg Met Lys Leu Glu Glu Lys	
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Thr Ser Glu Ile Phe His Ser Gln Ser Phe Leu Ala Thr Gly Ser Asn	
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Gly Thr Leu Tyr Ala Tyr Ile Phe Leu His His Ala Gly Val Leu Pro	
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Trp His Asp Gly Lys Gln Val His Leu Val Ser Pro Leu Thr Thr Tyr	
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Phe Leu Val Tyr Leu Tyr Gln Arg Trp Leu Tyr Pro Val Asp Lys Arg	

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Pro His Thr Asp *				
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Met Tyr Gly Ile Val Tyr Thr Arg Pro Cys Ser				
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Gly Asp Ala Asn Cys Ile Gln Pro Tyr Leu Ala Arg Arg Pro Lys Leu				
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Gln Leu Ser Val Tyr Thr Thr Thr Arg Ser His Leu Gly Ala Glu Asn				

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275	280	285	290	

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Glu His Gly Ala Ile Gly Pro Pro Gly Leu Gln Gly Ile Arg Gly Glu					
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Pro Gly Pro Pro Gly Leu Pro Gly Ser Val Gly Ser Pro Gly Val Pro					
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Gly Ile Gly Pro Pro Gly Ala Arg Gly Pro Pro Gly Gly Gln Gly Pro					
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Pro Gly Leu Ser Gly Pro Pro Gly Ile Lys Gly Glu Lys Gly Phe Pro					
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Gly Phe Pro Gly Leu Asp Met Pro Gly Pro Lys Gly Asp Lys Gly Ala					
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Gln Gly Leu Pro Gly Ile Thr Gly Gln Ser Gly Leu Pro Gly Leu Pro					
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Val Gly Ala Pro Gly Leu Pro Gly Glu Lys Gly Asp His Gly Phe Pro					
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Met Lys Val Glu Ser Ser Gln Glu Ala Asn Ala Glu Val Met Arg Glu	
1 5 10 15	
atg acc aag aag ctg tac agc cag tat gag gag aag ctg cag gaa gaa	153
Met Thr Lys Lys Leu Tyr Ser Gln Tyr Glu Glu Lys Leu Gln Glu Glu	
17 22 27 32	
cag agg aag cac agt gct gag aag gag gct ctt ttg gaa gaa acc aat	201
Gln Arg Lys His Ser Ala Glu Lys Glu Ala Leu Leu Glu Glu Thr Asn	
33 38 43 48	
agt ttt ctg aaa gcg att gaa gaa gcc aat aaa aag atg caa gca gca	249
Ser Phe Leu Lys Ala Ile Glu Glu Ala Asn Lys Lys Met Gln Ala Ala	
49 54 59 64	
gag atc agc cta gag gag aaa gac cag agg atc ggg gag ctg gac agg	297
Glu Ile Ser Leu Glu Glu Lys Asp Gln Arg Ile Gly Glu Leu Asp Arg	
65 70 75 80	
ctg att gag cgc atg gaa aag gaa cgt cat caa ctg caa ctt caa ctc	345
Leu Ile Glu Arg Met Glu Lys Glu Arg His Gln Leu Gln Leu Gln Leu	
81 86 91 96	
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Leu Glu His Glu Thr Glu Met Ser Gly Glu Leu Thr Asp Ser Asp Lys	
97 102 107 112	
gaa agg tat cag cag ttg gag gag gca tca gcc agc ctc cgt gag cgg	441
Glu Arg Tyr Gln Gln Leu Glu Glu Ala Ser Ala Ser Leu Arg Glu Arg	
113 118 123 128	
atc aga cac cta gat gac atg gtg cat tgc cag cag aag aaa gtc aag	489
Ile Arg His Leu Asp Asp Met Val His Cys Gln Gln Lys Lys Val Lys	
129 134 139 144	
cag atg gtc gag gag att gaa tca tta aag aaa aag ttg caa cag aaa	537
Gln Met Val Glu Glu Ile Glu Ser Leu Lys Lys Lys Leu Gln Gln Lys	
145 150 155 160	
cag ctc tta ata ctg cag ctt tta gaa aag ata tct ttc tta gaa gga	585
Gln Leu Leu Ile Leu Gln Leu Leu Glu Lys Ile Ser Phe Leu Glu Gly	
161 166 171 176	
gag aat aat gaa cta caa agc agg ttg gac tat tta aca gaa acc cag	633
Glu Asn Asn Glu Leu Gln Ser Arg Leu Asp Tyr Leu Thr Glu Thr Gln	
177 182 187 192	
gcc aag acc gaa gtg gaa acc aga gag ata gga gtg ggc tgt gat ctt	681
Ala Lys Thr Glu Val Glu Thr Arg Glu Ile Gly Val Gly Cys Asp Leu	
193 198 203 208	
cta ccc agc caa aca ggc agg act cgt gaa att gtg atg cct tct agg	729
Leu Pro Ser Gln Thr Gly Arg Thr Arg Glu Ile Val Met Pro Ser Arg	
209 214 219 224	

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 Asn Tyr Thr Pro Tyr Thr Arg Val Leu Glu Leu Thr Met Lys Lys Thr
 225 230 235 240

ctg act tag gcactca gaggcataca ctttttacag atggacaaaa gctctggaac 833
 Leu Thr *
 241

cctgtggcctt caaatccttt gggaagggtg actgttggtt cccctacaca cagtgtgaagc 893

cggaatggga atcgctgagg ctctgatcca ctcttaagac aggaaggaaa gtgaaggcag 953

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ttcgagaggg tgtgggaaaa gcaaccctga accggccaag ggccggcgaa gctgatcccc 180

caatggcatt ttgttttgaa cagttgctgg ggttgacgtt tcctcataag aggggtactg 240

gacaccagcg cagagtgcag actgaatggg gaaaggagat gcagagaaaa tctggcaaca 300

tacattattct tcacatccta ctctgtggggg agggctgcta gtggccctct gcaccaaccc 360

aaaga atg tct tcc aag caa gcc acc tct cca ttt gcc tgt gca gct 407

Met Ser Ser Lys Gln Ala Thr Ser Pro Phe Ala Cys Ala Ala

1

5

10

gat gga gag gat gca atg acc cag gat tta acc tca agg gaa aag gaa 455

Asp Gly Glu Asp Ala Met Thr Gln Asp Leu Thr Ser Arg Glu Lys Glu

15

20

25

30

gag ggc agt gat caa cat gtg gcc tcc cat ctg cct ctg cac ccc ata 503

Glu Gly Ser Asp Gln His Val Ala Ser His Leu Pro Leu His Pro Ile

31

36

41

46

atg cac aac aaa cct cac tct gag gag cta cca aca ctt gtc agt acc 551

Met His Asn Lys Pro His Ser Glu Glu Leu Pro Thr Leu Val Ser Thr

47

52

57

62

att caa caa gat gct gac tgg gac agc gtt ctg tca tct cag caa aga 599

Ile Gln Gln Asp Ala Asp Trp Asp Ser Val Leu Ser Ser Gln Gln Arg

63	68	73	78	
atg gaa tca gag aat aat aag tta tgt tcc cta tat tcc ttc cga aat				647
Met Glu Ser Glu Asn Asn Lys Leu Cys Ser Leu Tyr Ser Phe Arg Asn				
79	84	89	94	
acc tct acc tca cca cat aag cct gac gaa ggg agt cgg gac cgt gag				695
Thr Ser Thr Ser Pro His Lys Pro Asp Glu Gly Ser Arg Asp Arg Glu				
95	100	105	110	
ata atg acc agt gtt act ttt gga acc cca gag cgc cgc aaa ggg agt				743
Ile Met Thr Ser Val Thr Phe Gly Thr Pro Glu Arg Arg Lys Gly Ser				
111	116	121	126	
ctt gcc gat gtg gtg gac aca ctg aaa cag aag aag ctt gag gaa atg				791
Leu Ala Asp Val Val Asp Thr Leu Lys Gln Lys Lys Leu Glu Glu Met				
127	132	137	142	
act cgg act gaa caa gag gat tcc tcc tgc atg gaa aaa cta ctt tca				839
Thr Arg Thr Glu Gln Glu Asp Ser Ser Cys Met Glu Lys Leu Leu Ser				
143	148	153	158	
aaa gat tgg aag gaa aaa atg gaa aga cta aat acc agt gaa ctt ctt				887
Lys Asp Trp Lys Glu Lys Met Glu Arg Leu Asn Thr Ser Glu Leu Leu				
159	164	169	174	
gga gaa att aaa ggt aca cct gag agc ctg gca gaa aaa gaa cgg cag				935
Gly Glu Ile Lys Gly Thr Pro Glu Ser Leu Ala Glu Lys Glu Arg Gln				
175	180	185	190	
ctc tcc acc atg att acc cag ctg atc agt tta cgg gag cag cta ctg				983
Leu Ser Thr Met Ile Thr Gln Leu Ile Ser Leu Arg Glu Gln Leu Leu				
191	196	201	206	
gca gcg cat gat gaa cag aaa aaa ctg gca gcg tca caa att gag aaa				1031
Ala Ala His Asp Glu Gln Lys Lys Leu Ala Ala Ser Gln Ile Glu Lys				
207	212	217	222	
caa cgg cag caa atg gac ctt gct cgc caa cag caa gaa cag att gcg				1079
Gln Arg Gln Gln Met Asp Leu Ala Arg Gln Gln Gln Glu Gln Ile Ala				
223	228	233	238	
aga caa cag cag caa ctt ctg caa cag cag cac aaa att aat ctc ctg				1127
Arg Gln Gln Gln Gln Leu Leu Gln Gln Gln His Lys Ile Asn Leu Leu				
239	244	249	254	
cag caa cag atc cag cag gtt cag ggt cac atg cct ccg ctc atg atc				1175
Gln Gln Gln Ile Gln Gln Val Gln Gly His Met Pro Pro Leu Met Ile				
255	260	265	270	
cca att ttt cca cat gac cag cgg act ctg gca gca gct gct gct gcc				1223
Pro Ile Phe Pro His Asp Gln Arg Thr Leu Ala Ala Ala Ala Ala Ala				
271	276	281	286	
caa cag gga ttc ctc ttc ccc cct gga ata aca tac aaa cca ggt gat				1271
Gln Gln Gly Phe Leu Phe Pro Pro Gly Ile Thr Tyr Lys Pro Gly Asp				
287	292	297	302	

aac tac ccc gta cag ttc att cca tca aca atg gca gct gct gct gct	1319
Asn Tyr Pro Val Gln Phe Ile Pro Ser Thr Met Ala Ala Ala Ala	
303 308 313 318	
tct gga ctc agc cct tta cag ctc cag aag ggt cat gtc tcc cac cca	1367
Ser Gly Leu Ser Pro Leu Gln Leu Gln Lys Gly His Val Ser His Pro	
319 324 329 334	
caa att aac caa agg cta aag ggc cta agt gac cgt ttt ggc agg aat	1415
Gln Ile Asn Gln Arg Leu Lys Gly Leu Ser Asp Arg Phe Gly Arg Asn	
335 340 345 350	
ttg gac acc ttt gaa cat ggt ggt ggc cac tct tac aac cac aaa cag	1463
Leu Asp Thr Phe Glu His Gly Gly Gly His Ser Tyr Asn His Lys Gln	
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att gag cag ctc tat gcc gct cag ctg gcc agc atg cag gtg tca cct	1511
Ile Glu Gln Leu Tyr Ala Ala Gln Leu Ala Ser Met Gln Val Ser Pro	
367 372 377 382	
gga gca aag atg cca tca act cca cag cca cca aac aca gca ggg acg	1559
Gly Ala Lys Met Pro Ser Thr Pro Gln Pro Pro Asn Thr Ala Gly Thr	
383 388 393 398	
gtc tca cct act ggg ata aaa aat gaa aag aga ggg acc agc cct gta	1607
Val Ser Pro Thr Gly Ile Lys Asn Glu Lys Arg Gly Thr Ser Pro Val	
399 404 409 414	
act caa gtt aag gat gaa gca gca gca cag cct ctg aat ctc tca tcc	1655
Thr Gln Val Lys Asp Glu Ala Ala Ala Gln Pro Leu Asn Leu Ser Ser	
415 420 425 430	
cga ccc aag aca gca gag cct gta aag tcc cca acg tct ccc acc cag	1703
Arg Pro Lys Thr Ala Glu Pro Val Lys Ser Pro Thr Ser Pro Thr Gln	
431 436 441 446	
aac ctc ttc cca gcc agc aaa acc agc cct gtc aat ctg cca aac aaa	1751
Asn Leu Phe Pro Ala Ser Lys Thr Ser Pro Val Asn Leu Pro Asn Lys	
447 452 457 462	
agc agc atc cct agc ccc att gga gga agc ctg gga aga gga tcc tct	1799
Ser Ser Ile Pro Ser Pro Ile Gly Gly Ser Leu Gly Arg Gly Ser Ser	
463 468 473 478	
tta gat atc cta tct agt ctc aac tcc cct gcc ctt ttt ggg gat cag	1847
Leu Asp Ile Leu Ser Ser Leu Asn Ser Pro Ala Leu Phe Gly Asp Gln	
479 484 489 494	
gat aca gtg atg aaa gcc att cag gag gcg cgg aag atg cga gag cag	1895
Asp Thr Val Met Lys Ala Ile Gln Glu Ala Arg Lys Met Arg Glu Gln	
495 500 505 510	
atc cag cgg gag caa cag cag caa cag cca cat ggt gtt gac ggg aaa	1943
Ile Gln Arg Glu Gln Gln Gln Gln Gln Pro His Gly Val Asp Gly Lys	
511 516 521 526	

ctg tcc tcc ata aat aat atg ggg ctg aat agc tgc agg aat gaa aag	1991
Leu Ser Ser Ile Asn Asn Met Gly Leu Asn Ser Cys Arg Asn Glu Lys	
527 532 537 542	
gaa aga acg cgc ttt gag aat ttg ggg ccc cag tta acg gga aag tca	2039
Glu Arg Thr Arg Phe Glu Asn Leu Gly Pro Gln Leu Thr Gly Lys Ser	
543 548 553 558	
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Asn Glu Asp Gly Lys Leu Gly Pro Gly Val Ile Asp Leu Thr Arg Pro	
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Glu Asp Ala Glu Gly Gly Ala Thr Val Ala Glu Ala Arg Val Tyr Arg	
575 580 585 590	
gac gcc cgc ggc ctg cca gca gcg agc cac aca tta agc gac cat atg	2183
Asp Ala Arg Gly Leu Pro Ala Ala Ser His Thr Leu Ser Asp His Met	
591 596 601 606	
aat gca ttc ata ggt ttg ggc aaa gga tga g aggagaaaa tccttcaggc	2234
Asn Ala Phe Ile Gly Leu Gly Lys Gly *	
607 612	
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cctggagccg acaccaccgc catc   atg ccg gcc gtg tcc aag ggc gat ggg      171
                               Met Pro Ala Val Ser Lys Gly Asp Gly
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atg cgg ggg ctc gcg gtg ttc atc tcc gac atc cgg aac tgt aag agc      219
Met Arg Gly Leu Ala Val Phe Ile Ser Asp Ile Arg Asn Cys Lys Ser
  10                               15                               20                               25

aaa gag gcg gaa att aag aga atc aac aag gaa ctg gcc aac atc cgc      267
Lys Glu Ala Glu Ile Lys Arg Ile Asn Lys Glu Leu Ala Asn Ile Arg
  26                               31                               36                               41

tcc aag ttc aaa gga gac aaa gcc ttg gat ggc tac agt aag aaa aaa      315
Ser Lys Phe Lys Gly Asp Lys Ala Leu Asp Gly Tyr Ser Lys Lys Lys
  42                               47                               52                               57

tat gtg tgt aaa ctg ctt ttc atc ttc ctg ctt ggc cat gac att gac      363
Tyr Val Cys Lys Leu Leu Phe Ile Phe Leu Leu Gly His Asp Ile Asp
  58                               63                               68                               73

ttt ggg cac atg gag gct gtg aat ctg ttg agt tcc aat aaa tac aca      411
Phe Gly His Met Glu Ala Val Asn Leu Leu Ser Ser Asn Lys Tyr Thr
  74                               79                               84                               89

gag aag caa ata ggt tac ctg ttc att tct gtg ctg gtg aac tcg aac      459
Glu Lys Gln Ile Gly Tyr Leu Phe Ile Ser Val Leu Val Asn Ser Asn
  90                               95                               100                               105

tcg gag ctg atc cgc ctc atc aac aac gcc atc aag aat gac ctg gcc      507
Ser Glu Leu Ile Arg Leu Ile Asn Asn Ala Ile Lys Asn Asp Leu Ala
  106                               111                               116                               121

agc cgc aac ccc acc ttc atg tgc ctg gcc ctg cac tgc atc gcc aac      555
Ser Arg Asn Pro Thr Phe Met Cys Leu Ala Leu His Cys Ile Ala Asn
  122                               127                               132                               137

gtg ggc agc cgg gag atg ggc gag gcc ttt gcc gct gac atc ccc cgc      603
Val Gly Ser Arg Glu Met Gly Glu Ala Phe Ala Ala Asp Ile Pro Arg
  138                               143                               148                               153

atc ctg gtg gcc ggg gac agc atg gac agt gtc aag cag agt gcg gcc      651
Ile Leu Val Ala Gly Asp Ser Met Asp Ser Val Lys Gln Ser Ala Ala
  154                               159                               164                               169

ctg tgc ctc ctt cga ctg tac aag gcc tcg cct gac ctg gtg ccc atg      699

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Gly Glu Trp Thr Ala Arg Val Val His Leu Leu Asn Asp Gln His Met	
186 191 196 201	
ggt gtg gtc acg gcc gcc gtc agc ctc atc acc tgt ctc tgc aag aag	795
Gly Val Val Thr Ala Ala Val Ser Leu Ile Thr Cys Leu Cys Lys Lys	
202 207 212 217	
aac cca gat gac ttc aag acg tgc gtc tct ctg gct gtg tcg cgc ctg	843
Asn Pro Asp Asp Phe Lys Thr Cys Val Ser Leu Ala Val Ser Arg Leu	
218 223 228 233	
agc cgg atc gtc tcc tct gcc tcc acc gac ctc cag gac tac acc tac	891
Ser Arg Ile Val Ser Ser Ala Ser Thr Asp Leu Gln Asp Tyr Thr Tyr	
234 239 244 249	
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Tyr Phe Val Pro Ala Pro Trp Leu Ser Val Lys Leu Leu Arg Leu Leu	
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Gln Cys Tyr Pro Pro Pro Glu Asp Ala Ala Val Lys Gly Arg Leu Val	
266 271 276 281	
gaa tgt ctg gag act gtg ctc aac aag gcc cag gag ccc ccc aaa tcc	1035
Glu Cys Leu Glu Thr Val Leu Asn Lys Ala Gln Glu Pro Pro Lys Ser	
282 287 292 297	
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Lys Lys Val Gln His Ser Asn Ala Lys Asn Ala Ile Leu Phe Glu Thr	
298 303 308 313	
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Ile Ser Leu Ile Ile His Tyr Asp Ser Glu Pro Asn Leu Leu Val Arg	
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Ala Cys Asn Gln Leu Gly Gln Phe Leu Gln His Arg Glu Thr Asn Leu	
330 335 340 345	
cgc tac ctg gcc ctg gag agc atg tgc acg ctg gcc agc tcc gag ttc	1227
Arg Tyr Leu Ala Leu Glu Ser Met Cys Thr Leu Ala Ser Ser Glu Phe	
346 351 356 361	
tcc cat gaa gcc gtc aag acg cac att gac acc gtc atc aat gcc ctc	1275
Ser His Glu Ala Val Lys Thr His Ile Asp Thr Val Ile Asn Ala Leu	
362 367 372 377	
aag acg gag cgg gac gtc agc gtg cgg cag cgg gcg gct gac ctc ctc	1323
Lys Thr Glu Arg Asp Val Ser Val Arg Gln Arg Ala Ala Asp Leu Leu	
378 383 388 393	
tac gcc atg tgt gac cgg agc aat gcc aag cag atc gtg tcg gag atg	1371
Tyr Ala Met Cys Asp Arg Ser Asn Ala Lys Gln Ile Val Ser Glu Met	

394	399	404	409	
ctg cgg tac ctg gag acg gca gac tac gcc atc cgc gag gag atc gtc				1419
Leu Arg Tyr Leu Glu Thr Ala Asp Tyr Ala Ile Arg Glu Glu Ile Val				
410	415	420	425	
ctg aag gtg gcc atc ctg gcc gag aag tac gcc gtg gac tac agc tgg				1467
Leu Lys Val Ala Ile Leu Ala Glu Lys Tyr Ala Val Asp Tyr Ser Trp				
426	431	436	441	
tac gtg gac acc atc ctc aac ctc atc cgc att gcg ggc gac tac gtg				1515
Tyr Val Asp Thr Ile Leu Asn Leu Ile Arg Ile Ala Gly Asp Tyr Val				
442	447	452	457	
agt gag gag gtg tgg tac cgt gtg cta cag atc gtc acc aac cgt gat				1563
Ser Glu Glu Val Trp Tyr Arg Val Leu Gln Ile Val Thr Asn Arg Asp				
458	463	468	473	
gac gtc cag ggc tat gcc gcc aag acc gtc ttt gag gcg ctc cag gcc				1611
Asp Val Gln Gly Tyr Ala Ala Lys Thr Val Phe Glu Ala Leu Gln Ala				
474	479	484	489	
cct gcc tgt cac gag aac atg gtg aag gtt ggc ggc tac atc ctt ggg				1659
Pro Ala Cys His Glu Asn Met Val Lys Val Gly Gly Tyr Ile Leu Gly				
490	495	500	505	
gag ttt ggg aac ctg att gct ggg gac ccc cgc tcc agc ccc cca gtg				1707
Glu Phe Gly Asn Leu Ile Ala Gly Asp Pro Arg Ser Ser Pro Pro Val				
506	511	516	521	
cag ttc tcc ctg ctc cac tcc aag ttc cat ctg tgc agc gtg gcc acg				1755
Gln Phe Ser Leu Leu His Ser Lys Phe His Leu Cys Ser Val Ala Thr				
522	527	532	537	
cgg gcg ctg ctg ctg tcc acc tac atc aag ttc atc aac ctc tcc ccc				1803
Arg Ala Leu Leu Leu Ser Thr Tyr Ile Lys Phe Ile Asn Leu Ser Pro				
538	543	548	553	
gag acc aag gcc acc atc cag ggc gtc ctg cgg gcc ggc tcc cag ctg				1851
Glu Thr Lys Ala Thr Ile Gln Gly Val Leu Arg Ala Gly Ser Gln Leu				
554	559	564	569	
cgc aat gct gac gtg gag ctg cag cag cga gcc gtg gag tac ctc acc				1899
Arg Asn Ala Asp Val Glu Leu Gln Gln Arg Ala Val Glu Tyr Leu Thr				
570	575	580	585	
ctc agc tca gtg gcc agc acc gac gtc ctg gcc acg gtg ctg gag gag				1947
Leu Ser Ser Val Ala Ser Thr Asp Val Leu Ala Thr Val Leu Glu Glu				
586	591	596	601	
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Met Pro Pro Phe Pro Glu Arg Glu Ser Ser Ile Leu Ala Lys Leu Lys				
602	607	612	617	
cgc aag aag ggg cca ggg gcc ggc agc gcc ctg gac gat ggc cgg agg				2043
Arg Lys Lys Gly Pro Gly Ala Gly Ser Ala Leu Asp Asp Gly Arg Arg				
618	623	628	633	

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gcc cct ccc ccg gca gca ccc ccg gct tct gca gga gca ggg aac ctt Ala Pro Pro Pro Ala Ala Pro Pro Ala Ser Ala Gly Ala Gly Asn Leu 666 671 676 681	2187
ctg gtg gac gtc ttc gat ggc ccg gcc gcc cag ccc agc ctg ggg ccc Leu Val Asp Val Phe Asp Gly Pro Ala Ala Gln Pro Ser Leu Gly Pro 682 687 692 697	2235
acc ccc gag gag gcc ttc ctc agc gag ctg gag ccg cct gcc ccc gag Thr Pro Glu Glu Ala Phe Leu Ser Glu Leu Glu Pro Pro Ala Pro Glu 698 703 708 713	2283
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cct gag gac atc ggc cct ccc att ccg gaa gcc gat gag ttg ctg aat Pro Glu Asp Ile Gly Pro Pro Ile Pro Glu Ala Asp Glu Leu Leu Asn 730 735 740 745	2379
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Pro Val Thr Ile Asn Lys Phe Phe Gln Pro Thr Glu Met Ala Ala Gln	
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gat ttc ttc cag cgc tgg aag cag ctg agc ctc cct caa cag gag gcg	2811
Asp Phe Phe Gln Arg Trp Lys Gln Leu Ser Leu Pro Gln Gln Glu Ala	
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cag aaa atc ttc aaa gcc aac cac ccc atg gac gca gaa gtt act aag	2859
Gln Lys Ile Phe Lys Ala Asn His Pro Met Asp Ala Glu Val Thr Lys	
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gcc aag ctt ctg ggg ttt ggc tct gct ctc ctg gag aat gtg gac ccc	2907
Ala Lys Leu Leu Gly Phe Gly Ser Ala Leu Leu Asp Asn Val Asp Pro	
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Asn Pro Glu Asn Phe Val Gly Ala Gly Ile Ile Gln Thr Lys Ala Leu	
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Gln Val Gly Cys Leu Leu Arg Leu Glu Pro Asn Ala Gln Ala Gln Met	
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Tyr Arg Leu Thr Leu Arg Thr Ser Lys Glu Pro Val Ser Arg His Leu	
954 959 964 969	
tgt gag ctg ctg gca cag cag ttc tga gccct ggactctgcc ccgggggatg	3103
Cys Glu Leu Leu Ala Gln Gln Phe *	
970 975	
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cctggagccg	acaccaccgc	catc	atg ccg gcc	gtg tcc aag ggc	gat ggg	171
			Met Pro Ala Val	Ser Lys Gly Asp	Gly	
			1	5		
atg cgg ggg	ctc gcg gtg	ttc atc tcc	gac atc cgg	aac tgt aag	agc	219
Met Arg Gly	Leu Ala Val	Phe Ile Ser	Asp Ile Arg	Asn Cys Lys	Ser	
10		15		20	25	
aaa gag gcg	gaa att aag	aga atc aac	aag gaa ctg	gcc aac atc	cgc	267
Lys Glu Ala	Glu Ile Lys	Arg Ile Asn	Lys Glu Leu	Ala Asn Ile	Arg	
26		31		36	41	
tcc aag ttc	aaa gga gac	aaa gcc ttg	gat ggc tac	agt aag aaa	aaa	315
Ser Lys Phe	Lys Gly Asp	Lys Ala Leu	Asp Gly Tyr	Ser Lys Lys	Lys	
42		47		52	57	
tat gtg tgt	aaa ctg ctt	ttc atc ttc	ctg ctt ggc	cat gac att	gac	363
Tyr Val Cys	Lys Leu Leu	Phe Ile Phe	Leu Leu Gly	His Asp Ile	Asp	
58		63		68	73	
ttt ggg cac	atg gag gct	gtg aat ctg	ttg agt tcc	aat aaa tac	aca	411
Phe Gly His	Met Glu Ala	Val Asn Leu	Leu Ser Ser	Asn Lys Tyr	Thr	
74		79		84	89	
gag aag caa	ata ggt tac	ctg ttc att	tct gtg ctg	gtg aac tcg	aac	459
Glu Lys Gln	Ile Gly Tyr	Leu Phe Ile	Ser Val Leu	Val Asn Ser	Asn	
90		95		100	105	
tcg gag ctg	atc cgc ctc	atc aac aac	gcc atc aag	aat gac ctg	gcc	507
Ser Glu Leu	Ile Arg Leu	Ile Asn Asn	Ala Ile Lys	Asn Asp Leu	Ala	
106		111		116	121	
agc cgc aac	ccc acc ttc	atg tgc ctg	gcc ctg cac	tgc atc gcc	aac	555
Ser Arg Asn	Pro Thr Phe	Met Cys Leu	Ala Leu His	Cys Ile Ala	Asn	
122		127		132	137	
gtg ggc agc	cgg gag atg	ggc gag gcc	ttt gcc gct	gac atc ccc	cgc	603
Val Gly Ser	Arg Glu Met	Gly Glu Ala	Phe Ala Ala	Asp Ile Pro	Arg	
138		143		148	153	
atc ctg gtg	gcc ggg gac	agc atg gac	agt gtc aag	cag agt gcg	gcc	651
Ile Leu Val	Ala Gly Asp	Ser Met Asp	Ser Val Lys	Gln Ser Ala	Ala	
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Leu Cys Leu	Leu Arg Leu	Tyr Lys Ala	Ser Pro Asp	Leu Val Pro	Met	
170		175		180	185	
ggc gag tgg	acg gcg cgt	gtg gta cac	ctg ctc aat	gac cag cac	atg	747
Gly Glu Trp	Thr Ala Arg	Val Val His	Leu Leu Asn	Asp Gln His	Met	
186		191		196	201	
ggg gtg gtc	acg gcc gcc	gtc agc ctc	atc acc tgt	ctc tgc aag	aag	795

Gly Val Val Thr Ala Ala Val Ser Leu Ile Thr Cys Leu Cys Lys Lys	
202 207 212 217	
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Asn Pro Asp Asp Phe Lys Thr Cys Val Ser Leu Ala Val Ser Arg Leu	
218 223 228 233	
agc cgg atc gtc tcc tct gcc tcc acc gac ctc cag gac tac acc tac	891
Ser Arg Ile Val Ser Ser Ala Ser Thr Asp Leu Gln Asp Tyr Thr Tyr	
234 239 244 249	
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Tyr Phe Val Pro Ala Pro Trp Leu Ser Val Lys Leu Leu Arg Leu Leu	
250 255 260 265	
cag tgc tac ccg cct cca gag gat gcg gct gtg aag ggg cgg ctg gtg	987
Gln Cys Tyr Pro Pro Pro Glu Asp Ala Ala Val Lys Gly Arg Leu Val	
266 271 276 281	
gaa tgt ctg gag act gtg ctc aac aag gcc cag gag ccc ccc aaa tcc	1035
Glu Cys Leu Glu Thr Val Leu Asn Lys Ala Gln Glu Pro Pro Lys Ser	
282 287 292 297	
aag aag gtg cag cat tcc aac gcc aag aac gcc atc ctc ttc gag acc	1083
Lys Lys Val Gln His Ser Asn Ala Lys Asn Ala Ile Leu Phe Glu Thr	
298 303 308 313	
atc agc ctc atc atc cac tat gac agt gag ccc aac ctc ctg gtt cgg	1131
Ile Ser Leu Ile Ile His Tyr Asp Ser Glu Pro Asn Leu Leu Val Arg	
314 319 324 329	
gcc tgc aac cag ctg ggc cag ttc ctg cag cac cgg gag acc aac ctg	1179
Ala Cys Asn Gln Leu Gly Gln Phe Leu Gln His Arg Glu Thr Asn Leu	
330 335 340 345	
cgc tac ctg gcc ctg gag agc atg tgc acg ctg gcc agc tcc gag ttc	1227
Arg Tyr Leu Ala Leu Glu Ser Met Cys Thr Leu Ala Ser Ser Glu Phe	
346 351 356 361	
tcc cat gaa gcc gtc aag acg cac att gac acc gtc atc aat gcc ctc	1275
Ser His Glu Ala Val Lys Thr His Ile Asp Thr Val Ile Asn Ala Leu	
362 367 372 377	
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Lys Thr Glu Arg Asp Val Ser Val Arg Gln Arg Ala Ala Asp Leu Leu	
378 383 388 393	
tac gcc atg tgt gac cgg agc aat gcc aag cag atc gtg tcg gag atg	1371
Tyr Ala Met Cys Asp Arg Ser Asn Ala Lys Gln Ile Val Ser Glu Met	
394 399 404 409	
ctg cgg tac ctg gag acg gca gac tac gcc atc cgc gag gag atc gtc	1419
Leu Arg Tyr Leu Glu Thr Ala Asp Tyr Ala Ile Arg Glu Glu Ile Val	
410 415 420 425	
ctg aag gtg gcc atc ctg gcc gag aag tac gcc gtg gac tac agc tgg	1467
Leu Lys Val Ala Ile Leu Ala Glu Lys Tyr Ala Val Asp Tyr Ser Trp	

426	431	436	441	
tac gtg gac acc atc ctc aac ctc atc cgc att gcg ggc gac tac gtg				1515
Tyr Val Asp Thr Ile Leu Asn Leu Ile Arg Ile Ala Gly Asp Tyr Val				
442	447	452	457	
agt gag gag gtg tgg tac cgt gtg cta cag atc gtc acc aac cgt gat				1563
Ser Glu Glu Val Trp Tyr Arg Val Leu Gln Ile Val Thr Asn Arg Asp				
458	463	468	473	
gac gtc cag ggc tat gcc gcc aag acc gtc ttt gag gcg ctc cag gcc				1611
Asp Val Gln Gly Tyr Ala Ala Lys Thr Val Phe Glu Ala Leu Gln Ala				
474	479	484	489	
cct gcc tgt cac gag aac atg gtg aag gtt ggc ggc tac atc ctt ggg				1659
Pro Ala Cys His Glu Asn Met Val Lys Val Gly Gly Tyr Ile Leu Gly				
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gag ttt ggg aac ctg att gct ggg gac ccc cgc tcc agc ccc cca gtg				1707
Glu Phe Gly Asn Leu Ile Ala Gly Asp Pro Arg Ser Ser Pro Pro Val				
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cag ttc tcc ctg ctc cac tcc aag ttc cat ctg tgc agc gtg gcc acg				1755
Gln Phe Ser Leu Leu His Ser Lys Phe His Leu Cys Ser Val Ala Thr				
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cgg gcg ctg ctg ctg tcc acc tac atc aag ttc atc aac ctc tcc ccc				1803
Arg Ala Leu Leu Leu Ser Thr Tyr Ile Lys Phe Ile Asn Leu Ser Pro				
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gag acc aag gcc acc atc cag ggc gtc ctg cgg gcc ggc tcc cag ctg				1851
Glu Thr Lys Ala Thr Ile Gln Gly Val Leu Arg Ala Gly Ser Gln Leu				
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cgc aat gct gac gtg gag ctg cag cag cga gcc gtg gag tac ctc acc				1899
Arg Asn Ala Asp Val Glu Leu Gln Gln Arg Ala Val Glu Tyr Leu Thr				
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Leu Ser Ser Val Ala Ser Thr Asp Val Leu Ala Thr Val Leu Glu Glu				
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Met Pro Pro Phe Pro Glu Arg Glu Ser Ser Ile Leu Ala Lys Leu Lys				
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Arg Lys Lys Gly Pro Gly Ala Gly Ser Ala Leu Asp Asp Gly Arg Arg				
618	623	628	633	
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Asp Pro Ser Ser Asn Asp Ile Asn Gly Gly Met Glu Pro Thr Pro Ser				
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Thr Val Ser Thr Pro Ser Pro Ser Ala Asp Leu Leu Gly Leu Arg Ala				
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Ala Pro Pro Pro Ala Ala Pro Pro Ala Ser Ala Gly Ala Gly Asn Leu	
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ctg gtg gac gtc ttc gat ggc ccg gcc gcc cag ccc agc ctg ggg ccc	2235
Leu Val Asp Val Phe Asp Gly Pro Ala Ala Gln Pro Ser Leu Gly Pro	
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acc ccc gag gag gcc ttc ctc agc cca ggt cct gag gac atc ggc cct	2283
Thr Pro Glu Glu Ala Phe Leu Ser Pro Gly Pro Glu Asp Ile Gly Pro	
698 703 708 713	
ccc att ccg gaa gcc gat gag ttg ctg aat aag ttt gtg tgt aag aac	2331
Pro Ile Pro Glu Ala Asp Glu Leu Leu Asn Lys Phe Val Cys Lys Asn	
714 719 724 729	
aac ggg gtc ctg ttc gag aac cag ctg ctg cag atc gga gtc aag tca	2379
Asn Gly Val Leu Phe Glu Asn Gln Leu Leu Gln Ile Gly Val Lys Ser	
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Glu Phe Arg Gln Asn Leu Gly Arg Met Tyr Leu Phe Tyr Gly Asn Lys	
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Thr Ser Val Gln Phe Gln Asn Phe Ser Pro Thr Val Val His Pro Gly	
762 767 772 777	
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Asp Leu Gln Thr Gln Leu Ala Val Gln Thr Lys Arg Val Ala Ala Gln	
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Arg Asp Phe Leu Thr Pro Pro Leu Leu Ser Val Arg Phe Arg Tyr Gly	
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Asn His Pro Met Asp Ala Glu Val Thr Lys Ala Lys Leu Leu Gly Phe	
874 879 884 889	

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 Gln Phe *
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 Met Lys Ala Leu Leu Leu Leu Val Leu Pro

1

5

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tcc tta atg aca gac gag cct ggc cta gac aac cct gcc tac gtg tcc Ser Leu Met Thr Asp Glu Pro Gly Leu Asp Asn Pro Ala Tyr Val Ser 75 80 85 90	530
tcg gca gag gac ggg cag cca gca atc agc cca gtg gac tct ggc cgg Ser Ala Glu Asp Gly Gln Pro Ala Ile Ser Pro Val Asp Ser Gly Arg 91 96 101 106	578
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agt gaa agc ctc tct att atg ctg gtg gga ggt agc gaa acc cca ctg Ser Glu Ser Leu Ser Ile Met Leu Val Gly Gly Ser Glu Thr Pro Leu 187 192 197 202	866
gtc cat atc att atc caa cac att tat cgt gat ggg gtg atc gcc aga Val His Ile Ile Ile Gln His Ile Tyr Arg Asp Gly Val Ile Ala Arg 203 208 213 218	914
gac ggc cgg cta ctg cca gga gac atc att cta aag gtc aac ggg atg Asp Gly Arg Leu Leu Pro Gly Asp Ile Ile Leu Lys Val Asn Gly Met 219 224 229 234	962
gac atc agc aat gtc cct cac aac tac gct gtg cgt ctc ctg cgg cag	1010

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Arg Ser Glu Ala Val	Ala Leu Leu Lys Arg	Thr Ser Ser Ser Ile Val		
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ctc aaa gct ttg gaa gtc	aaa gag tat gag ccc	cag gaa gac tgc agc		1778
Leu Lys Ala Leu Glu Val	Lys Glu Tyr Glu Pro	Gln Glu Asp Cys Ser		
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Ser Pro Ala Ala Leu Asp	Ser Asn His Asn Met	Ala Pro Pro Ser Asp		
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tgg tcc cca tcc tgg gtc	atg tgg ctg gaa tta	cca cgg tgc ttg tat		1874
Trp Ser Pro Ser Trp Val	Met Trp Leu Glu Leu	Pro Arg Cys Leu Tyr		
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aac tgt aaa gat att gta	tta cga aga aac aca	gct gga agt ctg ggc		1922
Asn Cys Lys Asp Ile Val	Leu Arg Arg Asn Thr	Ala Gly Ser Leu Gly		
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Phe Cys Ile Val Gly Gly	Tyr Glu Glu Tyr Asn	Gly Asn Lys Pro Phe		
555	560	565	570	
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Leu Pro Thr Leu Leu Arg His Ala Phe Arg Glu Met Phe Ser Val Gly
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Gly Leu Phe Trp Met Phe Arg Ile Arg Ile Ile Leu Cys Leu Met Gly
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Cys Leu *	
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act aaa ttg aaa ttt tct ttg aaa aag tcc ttt gat ttt ttt gat gaa Thr Lys Leu Lys Phe Ser Leu Lys Lys Ser Phe Asp Phe Phe Asp Glu 251 256 261 266	3820
tac ttt gtc ctg cta aaa ccc agg aac aat att aag caa aat gaa gag Tyr Phe Val Leu Leu Lys Pro Arg Asn Asn Ile Lys Gln Asn Glu Glu 267 272 277 282	3868
gcc aaa act cgg aga aag gtg gct gga tat ttt aag aaa tat gta gat Ala Lys Thr Arg Arg Lys Val Ala Gly Tyr Phe Lys Lys Tyr Val Asp 283 288 293 298	3916
ata ttt tgt ctc tta gaa gaa tca caa aac aac aca ggt ctt gga tca Ile Phe Cys Leu Leu Glu Glu Ser Gln Asn Asn Thr Gly Leu Gly Ser 299 304 309 314	3964

aag ttc agt gag cca ctt caa gta gag aga tgc agg aga aac cta gta Lys Phe Ser Glu Pro Leu Gln Val Glu Arg Cys Arg Arg Asn Leu Val 315 320 325 330	4012
gct tta aaa gca gac aag ttt tct ggg ctc ttg gaa tat ctt atc aaa Ala Leu Lys Ala Asp Lys Phe Ser Gly Leu Leu Glu Tyr Leu Ile Lys 331 336 341 346	4060
agt caa gag gat gct ata agc act atg aaa tgt ata gtg aac gaa tat Ser Gln Glu Asp Ala Ile Ser Thr Met Lys Cys Ile Val Asn Glu Tyr 347 352 357 362	4108
act ttt ctc tta gaa caa tgc act gtc aaa atc cag tca aaa gaa aag Thr Phe Leu Leu Glu Gln Cys Thr Val Lys Ile Gln Ser Lys Glu Lys 363 368 373 378	4156
cta aat ttc atc ttg gcc aac att att ctc tcc tgt atc caa cct acc Leu Asn Phe Ile Leu Ala Asn Ile Ile Leu Ser Cys Ile Gln Pro Thr 379 384 389 394	4204
tcc aga tta gta aag cca gtt gaa aaa cta aaa gat cag ctt cga gaa Ser Arg Leu Val Lys Pro Val Glu Lys Leu Lys Asp Gln Leu Arg Glu 395 400 405 410	4252
gtc ttg caa cca ata gga ctg act tat cag ttt tca gaa ccg tat ttt Val Leu Gln Pro Ile Gly Leu Thr Tyr Gln Phe Ser Glu Pro Tyr Phe 411 416 421 426	4300
cta gct tcc ctc tta ttc tgg cca gaa aat caa caa cta gat caa cat Leu Ala Ser Leu Leu Phe Trp Pro Glu Asn Gln Gln Leu Asp Gln His 427 432 437 442	4348
tct gaa caa atg aaa gag tat gct caa gca cta aaa aat tct ttc aag Ser Glu Gln Met Lys Glu Tyr Ala Gln Ala Leu Lys Asn Ser Phe Lys 443 448 453 458	4396
ggg caa tat aaa cat atg cat cgt aca aag caa cca att gca tat ttc Gly Gln Tyr Lys His Met His Arg Thr Lys Gln Pro Ile Ala Tyr Phe 459 464 469 474	4444
ttt ctt gga aaa ggt aaa aga ctg gaa aga ctt gtt cac aaa gga aaa Phe Leu Gly Lys Gly Lys Arg Leu Glu Arg Leu Val His Lys Gly Lys 475 480 485 490	4492
att gac cag tgc ttt aag aag aca cca gat att aat tcc ttg tgg cag Ile Asp Gln Cys Phe Lys Lys Thr Pro Asp Ile Asn Ser Leu Trp Gln 491 496 501 506	4540
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tta caa ggt cga gct gaa aac aat tgt tta tat ata gaa tat gga atc Leu Gln Gly Arg Ala Glu Asn Asn Cys Leu Tyr Ile Glu Tyr Gly Ile 523 528 533 538	4636
aat gaa aaa atc aca ata ccc atc act ccc gct ttt tta ggt caa ctt	4684

Asn Glu Lys Ile Thr Ile Pro Ile Thr Pro Ala Phe Leu Gly Gln Leu
 539 544 549 554

aga agt ggc aga agc ata gag aag gtg tct ttt tac ctg gga ttt tcc 4732
 Arg Ser Gly Arg Ser Ile Glu Lys Val Ser Phe Tyr Leu Gly Phe Ser
 555 560 565 570

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 Ile Gly Gly Pro Leu Ala Tyr Asp Ile Glu Ile Val *
 571 576 581

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 tctaggagtg cgtgatcaga atg gtg tct gga cgg ttc tac ttg tcc tgc 170
 Met Val Ser Gly Arg Phe Tyr Leu Ser Cys
 1 5
 ctg ctg ctg ggg tcc ctg ggc tct atg tgc atc ctc ttc act atc tac 218
 Leu Leu Leu Gly Ser Leu Gly Ser Met Cys Ile Leu Phe Thr Ile Tyr
 11 16 21 26
 tgg atg cag tac tgg cgt ggt ggc ttt gcc tgg aat ggc agc atc tac 266
 Trp Met Gln Tyr Trp Arg Gly Gly Phe Ala Trp Asn Gly Ser Ile Tyr
 27 32 37 42
 atg ttc aac tgg cac cca gtg ctt atg gtt gct ggc atg gtg gta ttc 314
 Met Phe Asn Trp His Pro Val Leu Met Val Ala Gly Met Val Val Phe
 43 48 53 58
 tat gga ggt gcg tca ctg gtg tac cgc ctg ccc cag tcg tgg gtg ggg 362
 Tyr Gly Gly Ala Ser Leu Val Tyr Arg Leu Pro Gln Ser Trp Val Gly
 59 64 69 74
 ccc aaa ctg ccc tgg aaa ctc ctc cat gca gcg ctg cac ctg atg gcc 410
 Pro Lys Leu Pro Trp Lys Leu Leu His Ala Ala Leu His Leu Met Ala
 75 80 85 90
 ttc gtc ctc act gtt gtg ggg ctg gtt gct gtc ttt acg ttt cac aac 458
 Phe Val Leu Thr Val Val Gly Leu Val Ala Val Phe Thr Phe His Asn
 91 96 101 106

cat gga agg act gcc aac ctc tac tcc ctt cac agc tgg ctg ggc atc His Gly Arg Thr Ala Asn Leu Tyr Ser Leu His Ser Trp Leu Gly Ile 107 112 117 122	506
acc act gtc ttc ctc ttc gcc tgc cag tgg ttc ctg ggc ttt gct gtc Thr Thr Val Phe Leu Phe Ala Cys Gln Trp Phe Leu Gly Phe Ala Val 123 128 133 138	554
ttc ctc ctg ccc tgg gcg tcc atg tgg ctg cgc agc ctc cta aaa cct Phe Leu Leu Pro Trp Ala Ser Met Trp Leu Arg Ser Leu Leu Lys Pro 139 144 149 154	602
atc cac gtc ttt ttt gga gcc gcc atc ctc tct ctg tcc atc gca tcc Ile His Val Phe Phe Gly Ala Ala Ile Leu Ser Leu Ser Ile Ala Ser 155 160 165 170	650
gtc att tcg ggc att aat gag aag ctt ttc ttc agt ttg aaa aac acc Val Ile Ser Gly Ile Asn Glu Lys Leu Phe Phe Ser Leu Lys Asn Thr 171 176 181 186	698
acc agg cca tac cac agc ctg ccc agt gag gcg gtc ttt gcc aac agc Thr Arg Pro Tyr His Ser Leu Pro Ser Glu Ala Val Phe Ala Asn Ser 187 192 197 202	746
acc ggg atg ctg gtg gtg gcc ttt ggg ctg ctg gtg ctc tac atc ctt Thr Gly Met Leu Val Val Ala Phe Gly Leu Leu Val Leu Tyr Ile Leu 203 208 213 218	794
ctg gct tca tct tgg aag cgc cca gag ccg ggg atc ctg acc gac aga Leu Ala Ser Ser Trp Lys Arg Pro Glu Pro Gly Ile Leu Thr Asp Arg 219 224 229 234	842
cag ccc ctg ctg cat gat ggg gag tga agcag caggaagggg ctcccaagag Gln Pro Leu Leu His Asp Gly Glu * 235 240	894
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ggtttcagca ggcgacttcc ttccaatgct gggcccagac ttcttgctg ggtgctggcc	1014
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<400> 123

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ttctcgaaaa aaaccttcag gcggccc      atg gca tgc ctt gga ctt tat tgt      111
                                   Met Ala Cys Leu Gly Leu Tyr Cys
                                   1              5

ggg aag acc cta tta ttt aaa aat ggc tca act gaa ata tat gga gaa      159
Gly Lys Thr Leu Leu Phe Lys Asn Gly Ser Thr Glu Ile Tyr Gly Glu
  9      14      19      24

tgt ggg gta tgc cca aga gga cag aga acg aat gca cag aaa tat tgt      207
Cys Gly Val Cys Pro Arg Gly Gln Arg Thr Asn Ala Gln Lys Tyr Cys
 25      30      35      40

cag cct tgc aca gaa tct cct gaa ctt tat gat tgg ctc tat ctt gga      255
Gln Pro Cys Thr Glu Ser Pro Glu Leu Tyr Asp Trp Leu Tyr Leu Gly
 41      46      51      56

ttt atg gca atg ctt cct ctg gtt tta cat tgg ttc ttc att gaa tgg      303
Phe Met Ala Met Leu Pro Leu Val Leu His Trp Phe Phe Ile Glu Trp
 57      62      67      72

tac tcg ggg aaa aag agt tcc agc gca ctt ttc caa cac atc act gca      351
Tyr Ser Gly Lys Lys Ser Ser Ser Ala Leu Phe Gln His Ile Thr Ala
 73      78      83      88

tta ttt gaa tgc agc atg gca gct att atc acc tta ctt gtg agt gat      399
Leu Phe Glu Cys Ser Met Ala Ala Ile Ile Thr Leu Leu Val Ser Asp
 89      94      99      104

cca gtt ggt gtt ctt tat att cgt tca tgt cga gta ttg atg ctt tct      447
Pro Val Gly Val Leu Tyr Ile Arg Ser Cys Arg Val Leu Met Leu Ser
105      110      115      120

gac tgg tac acg atg ctt tac aac cca agt cca gat tac gtt acc aca      495
Asp Trp Tyr Thr Met Leu Tyr Asn Pro Ser Pro Asp Tyr Val Thr Thr
121      126      131      136

gta cac tgt act cat gaa gcc gtc tac cca cta tat acc att gta ttt      543
Val His Cys Thr His Glu Ala Val Tyr Pro Leu Tyr Thr Ile Val Phe
137      142      147      152

atc tat tac gca ttc tgc ttg gta tta atg atg ctg ctc cga cct ctt      591
Ile Tyr Tyr Ala Phe Cys Leu Val Leu Met Met Leu Leu Arg Pro Leu
153      158      163      168
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ctg gtg aag aag att gca tgt ggg tta ggg aaa tct gat cga ttt aaa Leu Val Lys Lys Ile Ala Cys Gly Leu Gly Lys Ser Asp Arg Phe Lys 169 174 179 184	639
agt att tat gct gca ctt tac ttc ttc cca att tta acc gtg ctt cag Ser Ile Tyr Ala Ala Leu Tyr Phe Phe Pro Ile Leu Thr Val Leu Gln 185 190 195 200	687
gca gtt ggt gga ggc ctt tta tat tac gcc ttc cca tac att ata tta Ala Val Gly Gly Gly Leu Leu Tyr Tyr Ala Phe Pro Tyr Ile Ile Leu 201 206 211 216	735
gtg tta tct ttg gtt act ctg gct gtg tac atg tct gct tct gaa ata Val Leu Ser Leu Val Thr Leu Ala Val Tyr Met Ser Ala Ser Glu Ile 217 222 227 232	783
gag aac tgc tat gat ctt ctg gtc aga aag aaa aga ctt att gtt ctc Glu Asn Cys Tyr Asp Leu Leu Val Arg Lys Lys Arg Leu Ile Val Leu 233 238 243 248	831
ttc agc cac tgg tta ctt cat gcc tat gga ata atc tcc att tcc aga Phe Ser His Trp Leu Leu His Ala Tyr Gly Ile Ile Ser Ile Ser Arg 249 254 259 264	879
gtg gat aaa ctt gag caa gat ttg ccc ctt ttg gct ttg gta cct aca Val Asp Lys Leu Glu Gln Asp Leu Pro Leu Leu Ala Leu Val Pro Thr 265 270 275 280	927
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aaaacctgag aagtgtcct aataaaaaag taaatcaatc ttaacagtgt atgagaacta	1086
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1650

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gaaagctact gaacttc atg ctt gac aat ctc gca gtt cat cca gag cag 170

Met Leu Asp Asn Leu Ala Val His Pro Glu Gln
1 5

ctt cct ccg agg cca tgg att aca tta aaa gaa cga gac caa att ctg 218
Leu Pro Pro Arg Pro Trp Ile Thr Leu Lys Glu Arg Asp Gln Ile Leu
12 17 22 27

ccg tca gca tca ttc acg gtt atg tgt tac aat gtg tta tgt gat aaa 266
Pro Ser Ala Ser Phe Thr Val Met Cys Tyr Asn Val Leu Cys Asp Lys
28 33 38 43

tac gct acc cgg cag cta tat ggc tat tgc cca tcc tgg gca tta aac 314
Tyr Ala Thr Arg Gln Leu Tyr Gly Tyr Cys Pro Ser Trp Ala Leu Asn
44 49 54 59

tgg gaa tac agg aaa aag gga att atg gaa gaa att gtt aac tgt gac 362
Trp Glu Tyr Arg Lys Lys Gly Ile Met Glu Glu Ile Val Asn Cys Asp
60 65 70 75

gca gat atc att agt ctt cag gaa gtg gaa aca gag caa tac ttc act 410
Ala Asp Ile Ile Ser Leu Gln Glu Val Glu Thr Glu Gln Tyr Phe Thr
76 81 86 91

ctc ttt ctg cca gca ttg aag gag cgt gga tat gat gga ttt ttt tct 458
Leu Phe Leu Pro Ala Leu Lys Glu Arg Gly Tyr Asp Gly Phe Phe Ser
92 97 102 107

cca aag tca cgt gcc aaa atc atg tct gag cag gag aga aag cat gta 506
Pro Lys Ser Arg Ala Lys Ile Met Ser Glu Gln Glu Arg Lys His Val
108 113 118 123

gat ggt tgt gca ata ttc ttc aaa aca gaa aaa ttt aca ttg gtg cag 554
Asp Gly Cys Ala Ile Phe Phe Lys Thr Glu Lys Phe Thr Leu Val Gln
124 129 134 139

aag cat aca gtg gaa ttt aac caa gtg gcg atg gct aat tca gat gga 602
Lys His Thr Val Glu Phe Asn Gln Val Ala Met Ala Asn Ser Asp Gly

140	145	150	155	
tcc gaa gct atg ctg aac aga gtg atg aca aaa gat aac att ggt gtc				650
Ser Glu Ala Met Leu Asn Arg Val Met Thr Lys Asp Asn Ile Gly Val				
156	161	166	171	
gct gtg gta tta gag gtc cac aaa gaa cta ttt gga gca ggt atg aag				698
Ala Val Val Leu Glu Val His Lys Glu Leu Phe Gly Ala Gly Met Lys				
172	177	182	187	
cct att cat gct gca gac aaa cag ctg ctt ata gtg gca aat gcc cac				746
Pro Ile His Ala Ala Asp Lys Gln Leu Leu Ile Val Ala Asn Ala His				
188	193	198	203	
atg cat tgg gac cca gag tat tct gat gtg aag ctc atc cag acc atg				794
Met His Trp Asp Pro Glu Tyr Ser Asp Val Lys Leu Ile Gln Thr Met				
204	209	214	219	
atg ttt gtc tca gag gtt aaa aac att ctg gag aaa gcc tct agt agg				842
Met Phe Val Ser Glu Val Lys Asn Ile Leu Glu Lys Ala Ser Ser Arg				
220	225	230	235	
cct gga agc cca act gca gat cct aat tcc atc ccg ctg gtg cta tgt				890
Pro Gly Ser Pro Thr Ala Asp Pro Asn Ser Ile Pro Leu Val Leu Cys				
236	241	246	251	
gca gat ctt aac tca ttg cca gat tca ggt gtt gtg gaa tac tta agc				938
Ala Asp Leu Asn Ser Leu Pro Asp Ser Gly Val Val Glu Tyr Leu Ser				
252	257	262	267	
aat gga gga gta gct gac aac cat aaa gac ttc aag gaa cta agg tac				986
Asn Gly Gly Val Ala Asp Asn His Lys Asp Phe Lys Glu Leu Arg Tyr				
268	273	278	283	
aat gag tgt ctt atg aac ttc agc tgc aat gga aag aat gga agc tca				1034
Asn Glu Cys Leu Met Asn Phe Ser Cys Asn Gly Lys Asn Gly Ser Ser				
284	289	294	299	
gaa ggg aga atc aca cat ggc ttc caa ctt aag agc gcc tat gaa aat				1082
Glu Gly Arg Ile Thr His Gly Phe Gln Leu Lys Ser Ala Tyr Glu Asn				
300	305	310	315	
aac ttg atg cct tac acc aat tac acc ttt gat ttc aaa ggc gtg att				1130
Asn Leu Met Pro Tyr Thr Asn Tyr Thr Phe Asp Phe Lys Gly Val Ile				
316	321	326	331	
gac tac att ttc tat tcc aag act cat atg aac gtg ctt ggt gtc ctg				1178
Asp Tyr Ile Phe Tyr Ser Lys Thr His Met Asn Val Leu Gly Val Leu				
332	337	342	347	
ggg cct tta gat cct caa tgg ctg gtt gag aac aac atc act ggg tgt				1226
Gly Pro Leu Asp Pro Gln Trp Leu Val Glu Asn Asn Ile Thr Gly Cys				
348	353	358	363	
cca cac cct cac atc cct tca gac cac ttc tca ctg tta aca caa ctt				1274
Pro His Pro His Ile Pro Ser Asp His Phe Ser Leu Leu Thr Gln Leu				
364	369	374	379	

gaa ctc cac cct cca ctc ctg cct ctt gtc aat ggt gtt cac ttg cct 1322
 Glu Leu His Pro Pro Leu Leu Pro Leu Val Asn Gly Val His Leu Pro
 380 385 390 395

aat cgg agg tag tgg agtactgccc cgccaagacg gggatctggt gctatggacc 1377
 Asn Arg Arg *
 396

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<211> 2850

<212> DNA

<213> Homo sapiens

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ctatagttaa cataccatca aattcacctt tttgatgtat acaactcagg ggtgattagt 180

atattcacia aaggtgtgct agcatcacca ctgtctcatt ttggagcatt ttcattgcccc 240

caccatgaag accatgtcca ctggcagcca ttcccatgac ctttccttgt gagatctcca 300

gttatcactt tgcacaagct gatgaattgc tgttcttgat aatactgagc tttcacaatc 360

acagttgcca gagaaacatc agcgggcttt agctggggca gagcttagca agtggtgggg 420

tatcagcagt tagtcactgt ttgcctggaa ccacaggatg tgaatcctag ttcttgatt 480

ccaaggaatc ctgcatccag gtgtttattg tgctttgcag agtcaacatc aagctcagga 540

gctgggtgca gacatagatg agtgtgaagt ttctggcctg tgcaggcatg gagggcgatg 600

cgtgaacact catgggagct ttgaatgcta ctgt atg gat gga tac ttg cca 652
 Met Asp Gly Tyr Leu Pro
 1

agg aat gga cct gaa cct ttc cac ccg acc acc gat gcc aca tca tgc 700
 Arg Asn Gly Pro Glu Pro Phe His Pro Thr Asp Ala Thr Ser Cys
 7 12 17 22

aca gaa ata gac tgt ggt acc cct cct gag gtt cca gat ggc tat atc 748

Thr Glu Ile Asp Cys Gly Thr Pro Pro Glu Val Pro Asp Gly Tyr Ile	
23 28 33 38	
ata gga aat tat acg tct agt ctg ggc agc cag gtt cgt tat gct tgc	796
Ile Gly Asn Tyr Thr Ser Ser Leu Gly Ser Gln Val Arg Tyr Ala Cys	
39 44 49 54	
aga gaa gga ttc ttc agt gtt cca gaa gat aca gtt tca agc tgc aca	844
Arg Glu Gly Phe Phe Ser Val Pro Glu Asp Thr Val Ser Ser Cys Thr	
55 60 65 70	
ggc ctg ggc aca tgg gag tcc cca aaa tta cat tgc caa gag atc aac	892
Gly Leu Gly Thr Trp Glu Ser Pro Lys Leu His Cys Gln Glu Ile Asn	
71 76 81 86	
tgt ggc aac cct cca gaa atg cgg cac gcc atc ttg gta gga aat cac	940
Cys Gly Asn Pro Pro Glu Met Arg His Ala Ile Leu Val Gly Asn His	
87 92 97 102	
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Ser Ser Arg Leu Gly Gly Val Ala Arg Tyr Val Cys Gln Glu Gly Phe	
103 108 113 118	
gag agc cct gga gga aag atc act tct gtt tgc aca gag aaa ggc acc	1036
Glu Ser Pro Gly Gly Lys Ile Thr Ser Val Cys Thr Glu Lys Gly Thr	
119 124 129 134	
tgg aga gaa agt act tta aca tgc aca gaa att ctg aca aag att aat	1084
Trp Arg Glu Ser Thr Leu Thr Cys Thr Glu Ile Leu Thr Lys Ile Asn	
135 140 145 150	
gat gta tca ctg ttt aat gat acc tgt gtg aga tgg caa ata aac tca	1132
Asp Val Ser Leu Phe Asn Asp Thr Cys Val Arg Trp Gln Ile Asn Ser	
151 156 161 166	
aga aga ata aac ccc aag atc tca tat gtg ata tcc ata aaa gga caa	1180
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167 172 177 182	
cgg ttg gac cct atg gaa tca gtt cgt gag gag aca gtc aac ttg acc	1228
Arg Leu Asp Pro Met Glu Ser Val Arg Glu Glu Thr Val Asn Leu Thr	
183 188 193 198	
aca gac agc agg acc cca gaa gtg tgc cta gcc ctg tac cca ggc acc	1276
Thr Asp Ser Arg Thr Pro Glu Val Cys Leu Ala Leu Tyr Pro Gly Thr	
199 204 209 214	
aac tac acc gtg aac atc tcc aca gca cct ccc agg cgc tcg atg cca	1324
Asn Tyr Thr Val Asn Ile Ser Thr Ala Pro Pro Arg Arg Ser Met Pro	
215 220 225 230	
gcc gtc atc ggt ttc cag aca gct gaa gtt gat ctc tta gaa gat gat	1372
Ala Val Ile Gly Phe Gln Thr Ala Glu Val Asp Leu Leu Glu Asp Asp	
231 236 241 246	
gga agt ttc aat att tca ata ttt aat gaa act tgt ttg aaa ttg aac	1420
Gly Ser Phe Asn Ile Ser Ile Phe Asn Glu Thr Cys Leu Lys Leu Asn	

247	252	257	262	
agg cgt tct agg aaa gtt gga tca gaa cac atg tac caa ttt acc gtt				1468
Arg Arg Ser Arg Lys Val Gly Ser Glu His Met Tyr Gln Phe Thr Val				
263	268	273	278	
ctg ggt cag agg tgg tat ctg gct aac ttt tct cat gca aca tcg ttt				1516
Leu Gly Gln Arg Trp Tyr Leu Ala Asn Phe Ser His Ala Thr Ser Phe				
279	284	289	294	
aac ttc aca acg agg gaa caa gtg cct gta gtg tgt ttg gat ctg tac				1564
Asn Phe Thr Thr Arg Glu Gln Val Pro Val Val Cys Leu Asp Leu Tyr				
295	300	305	310	
cct acg act gat tat acg gtg aat gtg acc ctg ctg aga tct cct aag				1612
Pro Thr Thr Asp Tyr Thr Val Asn Val Thr Leu Leu Arg Ser Pro Lys				
311	316	321	326	
cgg cac tca gtg caa ata aca ata gca act ccc cca gca gta aaa cag				1660
Arg His Ser Val Gln Ile Thr Ile Ala Thr Pro Pro Ala Val Lys Gln				
327	332	337	342	
acc atc agt aac att tca gga ttt aat gaa acc tgc ttg aga tgg aga				1708
Thr Ile Ser Asn Ile Ser Gly Phe Asn Glu Thr Cys Leu Arg Trp Arg				
343	348	353	358	
agc atc aag aca gct gat atg gag gag atg tat tta ttc cac att tgg				1756
Ser Ile Lys Thr Ala Asp Met Glu Glu Met Tyr Leu Phe His Ile Trp				
359	364	369	374	
ggc cag aga tgg tat cag aag gaa ttt gcc cag gaa atg acc ttt aat				1804
Gly Gln Arg Trp Tyr Gln Lys Glu Phe Ala Gln Glu Met Thr Phe Asn				
375	380	385	390	
atc agt agc agc agc cga gat ccc gag gtg tgc ttg gac cta cgt ccg				1852
Ile Ser Ser Ser Ser Arg Asp Pro Glu Val Cys Leu Asp Leu Arg Pro				
391	396	401	406	
ggt acc aac tac aat gtc agt ctc cgg gct ctg tct tcg gaa ctt cct				1900
Gly Thr Asn Tyr Asn Val Ser Leu Arg Ala Leu Ser Ser Glu Leu Pro				
407	412	417	422	
gtg gtc atc tcc ctg aca acc cag ata aca gag cct ccc ctc ccg gaa				1948
Val Val Ile Ser Leu Thr Thr Gln Ile Thr Glu Pro Pro Leu Pro Glu				
423	428	433	438	
gta gaa ttt ttt acg gtg cac aga gga cct cta cca cgc ctc aga ctg				1996
Val Glu Phe Phe Thr Val His Arg Gly Pro Leu Pro Arg Leu Arg Leu				
439	444	449	454	
agg aaa gcc aag gag aaa aat gga cca atc agt tca tat cag gtg tta				2044
Arg Lys Ala Lys Glu Lys Asn Gly Pro Ile Ser Ser Tyr Gln Val Leu				
455	460	465	470	
gtg ctt ccc ctg gcc ctc caa agc aca ttt tct tgt gat tct gaa ggc				2092
Val Leu Pro Leu Ala Leu Gln Ser Thr Phe Ser Cys Asp Ser Glu Gly				
471	476	481	486	

gct tcc tcc ttc ttt agc aac gcc tct gat gct gat gga tac gtg gct	2140
Ala Ser Ser Phe Phe Ser Asn Ala Ser Asp Ala Asp Gly Tyr Val Ala	
487 492 497 502	
gca gaa cta ctg gcc aaa gat gtt cca gat gat gcc atg gag ata cct	2188
Ala Glu Leu Leu Ala Lys Asp Val Pro Asp Asp Ala Met Glu Ile Pro	
503 508 513 518	
ata gga gac agg ctg tac tat ggg gaa tat tat aat gca ccc ttg aaa	2236
Ile Gly Asp Arg Leu Tyr Tyr Gly Glu Tyr Tyr Asn Ala Pro Leu Lys	
519 524 529 534	
aga ggg agt gat tac tgc att ata tta cga atc ³ aca agt gaa tgg aat	2284
Arg Gly Ser Asp Tyr Cys Ile Ile Leu Arg Ile Thr Ser Glu Trp Asn	
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Lys Val Arg Arg His Ser Cys Ala Val Trp Ala Gln Val Lys Asp Ser	
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Ser Leu Met Leu Leu Gln Met Ala Gly Val Gly Leu Gly Ser Leu Ala	
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Val Val Ile Ile Leu Thr Phe Leu Ser Phe Ser Ala Val *	
583 588 593	
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Pro Leu Phe Glu Ala Glu Glu Gly Val Leu Ser Arg Thr Gln Ile Phe
2 7 12 17

cct acc act att aaa gtc att gat cca gaa ttt ctg gag gag cca cct 151
Pro Thr Thr Ile Lys Val Ile Asp Pro Glu Phe Leu Glu Glu Pro Pro
18 23 28 33

gca ctt gca ttt tta tat aag gat ctg tat gaa gaa gca gtt gga gag 199
Ala Leu Ala Phe Leu Tyr Lys Asp Leu Tyr Glu Glu Ala Val Gly Glu
34 39 44 49

aaa aag aag gaa gag gag aca gct tct gaa ggt gac agt gtg aat tct 247
Lys Lys Lys Glu Glu Glu Thr Ala Ser Glu Gly Asp Ser Val Asn Ser
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gag gca tca ttt ccc agc aga aat tct gac act gat gat gga aca gga 295
Glu Ala Ser Phe Pro Ser Arg Asn Ser Asp Thr Asp Asp Gly Thr Gly
66 71 76 81

ata tat ttt gag aag tac ata ctc aaa gat gac att ctc cat gac aca 343
Ile Tyr Phe Glu Lys Tyr Ile Leu Lys Asp Asp Ile Leu His Asp Thr
82 87 92 97

tct cta act caa aag gac cag ggc caa ggt ctg gaa gaa aaa cga gtt 391
Ser Leu Thr Gln Lys Asp Gln Gly Gln Gly Leu Glu Glu Lys Arg Val
98 103 108 113

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Gly Lys Asp Asp Ser Tyr Gln Pro Ile Ala Ala Glu Gly Glu Ile Trp
114 119 124 129

gga aag ttt gga act att tgc agg gag aag agt ctg gaa gaa cag aaa 487
Gly Lys Phe Gly Thr Ile Cys Arg Glu Lys Ser Leu Glu Glu Gln Lys
130 135 140 145

ggt gtt tat ggg gaa gga gaa tca gta gac cat gtg gag acc gtt ggt 535
Gly Val Tyr Gly Glu Gly Glu Ser Val Asp His Val Glu Thr Val Gly
146 151 156 161

aac gta gcg atg cag aag aaa gct ccc atc aca gag gac gtc aga gtg 583
Asn Val Ala Met Gln Lys Lys Ala Pro Ile Thr Glu Asp Val Arg Val
162 167 172 177

gct acc cag aaa ata agt tat gcg gtt cca ttt gaa gac acc cat cat 631
Ala Thr Gln Lys Ile Ser Tyr Ala Val Pro Phe Glu Asp Thr His His
178 183 188 193

gtt ctg gag cgt gca gat gaa gca ggc agt cac ggt aat gaa gtc gga 679
Val Leu Glu Arg Ala Asp Glu Ala Gly Ser His Gly Asn Glu Val Gly
194 199 204 209

aat gca agt cca gag gtc aat ctg aat gtc cca gta caa gtg tcc ttc	727
Asn Ala Ser Pro Glu Val Asn Leu Asn Val Pro Val Gln Val Ser Phe	
210 215 220 225	
ccg gag gaa gaa ttt gca tct ggt gca act cat gtt caa gaa aca tca	775
Pro Glu Glu Glu Phe Ala Ser Gly Ala Thr His Val Gln Glu Thr Ser	
226 231 236 241	
cta gaa gaa cct aaa atc ctg gtc cca cct gag cca agt gaa gag agg	823
Leu Glu Glu Pro Lys Ile Leu Val Pro Pro Glu Pro Ser Glu Glu Arg	
242 247 252 257	
ctc cgt aat agc cct gtt cag gat gag tat gaa ttt aca gaa tcc ctg	871
Leu Arg Asn Ser Pro Val Gln Asp Glu Tyr Glu Phe Thr Glu Ser Leu	
258 263 268 273	
cat aat gaa gtg gtt cct caa gac ata tta tca gaa gaa ctg tct tca	919
His Asn Glu Val Val Pro Gln Asp Ile Leu Ser Glu Glu Leu Ser Ser	
274 279 284 289	
gaa tcc aca cct gaa gat gtc tta tct caa gga aag gaa tcc ttt gag	967
Glu Ser Thr Pro Glu Asp Val Leu Ser Gln Gly Lys Glu Ser Phe Glu	
290 295 300 305	
cac atc agt gaa aat gaa ttt gcg agt gag gca gaa caa agt aca cct	1015
His Ile Ser Glu Asn Glu Phe Ala Ser Glu Ala Glu Gln Ser Thr Pro	
306 311 316 321	
gct gaa caa aaa gag ttg ggc agc gag agg aaa gaa gaa gac caa tta	1063
Ala Glu Gln Lys Glu Leu Gly Ser Glu Arg Lys Glu Glu Asp Gln Leu	
322 327 332 337	
tca tct gag gta gta act gaa aag gca caa aaa gag ctg aaa aag tcc	1111
Ser Ser Glu Val Val Thr Glu Lys Ala Gln Lys Glu Leu Lys Lys Ser	
338 343 348 353	
cag att gac aca tac tgt tac acc tgc aaa tgt cca att tct gcc act	1159
Gln Ile Asp Thr Tyr Cys Tyr Thr Cys Lys Cys Pro Ile Ser Ala Thr	
354 359 364 369	
gac aag gtg ttt ggc acc cac aaa gac cat gaa gtt tca acg ctt gac	1207
Asp Lys Val Phe Gly Thr His Lys Asp His Glu Val Ser Thr Leu Asp	
370 375 380 385	
aca gct ata agt gct gta aag gtt caa tta gca gaa ttt cta gaa aat	1255
Thr Ala Ile Ser Ala Val Lys Val Gln Leu Ala Glu Phe Leu Glu Asn	
386 391 396 401	
tta caa gaa aag tcc ttg agg att gaa gcc ttt gtt agt gag ata gaa	1303
Leu Gln Glu Lys Ser Leu Arg Ile Glu Ala Phe Val Ser Glu Ile Glu	
402 407 412 417	
tcc ttt ttt aat acc att gag gaa aac tgt agt aaa aat gag aaa agg	1351
Ser Phe Phe Asn Thr Ile Glu Glu Asn Cys Ser Lys Asn Glu Lys Arg	
418 423 428 433	
cta gaa gaa cag aat gag gaa atg atg aag aag gtt tta gca cag tat	1399

Leu Glu Glu Gln Asn Glu Glu Met Met Lys Lys Val Leu Ala Gln Tyr	
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gat gag aaa gcc cag agc ttt gag gaa gtg aag aag aag atg gag	1447
Asp Glu Lys Ala Gln Ser Phe Glu Glu Val Lys Lys Lys Lys Met Glu	
450	455 460 465
ttc ctg cat gag cag atg gtc cac ttt ctg cag agc atg gac act gcc	1495
Phe Leu His Glu Gln Met Val His Phe Leu Gln Ser Met Asp Thr Ala	
466	471 476 481
aaa gac acc ctg gag acc atc gtg aga gaa gca gag gag ctt gat gag	1543
Lys Asp Thr Leu Glu Thr Ile Val Arg Glu Ala Glu Glu Leu Asp Glu	
482	487 492 497
gcc gtc ttc ctg act tgc ttt gag gaa atc aat gaa agg ttg ctt tct	1591
Ala Val Phe Leu Thr Ser Phe Glu Glu Ile Asn Glu Arg Leu Leu Ser	
498	503 508 513
gca atg gag agc act gct tct tta gag aaa atg cct gct gcg ttt tcc	1639
Ala Met Glu Ser Thr Ala Ser Leu Glu Lys Met Pro Ala Ala Phe Ser	
514	519 524 529
ctt ttc gaa cat tat gat gac agc tgc gca aga agt gac cag atg tta	1687
Leu Phe Glu His Tyr Asp Asp Ser Ser Ala Arg Ser Asp Gln Met Leu	
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aaa caa gtg gct gtt cca cag cct cct aga tta gaa cct cag gaa cca	1735
Lys Gln Val Ala Val Pro Gln Pro Pro Arg Leu Glu Pro Gln Glu Pro	
546	551 556 561
aat tct gcc acc agc aca aca att gca gtt tac tgg agc atg aac aag	1783
Asn Ser Ala Thr Ser Thr Thr Ile Ala Val Tyr Trp Ser Met Asn Lys	
562	567 572 577
gaa gat gtc att gat tca ttt cag gtt tac tgc atg gag gag cca caa	1831
Glu Asp Val Ile Asp Ser Phe Gln Val Tyr Cys Met Glu Glu Pro Gln	
578	583 588 593
gat gat caa gaa gta aat gag ttg gta gaa gaa tac aga ctg aca gtg	1879
Asp Asp Gln Glu Val Asn Glu Leu Val Glu Glu Tyr Arg Leu Thr Val	
594	599 604 609
aaa gaa agc tac tgc att ttt gaa gat ctg gaa cct gac cga tgc tat	1927
Lys Glu Ser Tyr Cys Ile Phe Glu Asp Leu Glu Pro Asp Arg Cys Tyr	
610	615 620 625
caa gtg tgg gtg atg gct gtg aac ttc act gga tgt agc ctg ccc agt	1975
Gln Val Trp Val Met Ala Val Asn Phe Thr Gly Cys Ser Leu Pro Ser	
626	631 636 641
gaa agg gcc atc ttt agg aca gca ccc tcc acc cct gtg atc cgc gct	2023
Glu Arg Ala Ile Phe Arg Thr Ala Pro Ser Thr Pro Val Ile Arg Ala	
642	647 652 657
gag gac tgt act gtg tgt tgg aac aca gcc act atc cga tgg cgg ccc	2071
Glu Asp Cys Thr Val Cys Trp Asn Thr Ala Thr Ile Arg Trp Arg Pro	

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acc acc cca gag gcc	acg gag acc tac act	ctg gag tac tgc aga cag		2119
Thr Thr Pro Glu Ala	Thr Glu Thr Tyr Thr	Leu Glu Tyr Cys Arg Gln		
674	679	684	689	
cac tct cct gag gga	gag ggc ctc aga tct	ttc tct gga atc aaa gga		2167
His Ser Pro Glu Gly	Glu Gly Leu Arg Ser	Phe Ser Gly Ile Lys Gly		
690	695	700	705	
ctc cag ctg aaa gtt	aac ctc caa ccc aat	gat aac tac ttt ttc tat		2215
Leu Gln Leu Lys Val	Asn Leu Gln Pro Asn	Asp Asn Tyr Phe Phe Tyr		
706	711	716	721	
gtg agg gcc atc aat	gca ttt ggg aca agt	gaa cag agt gaa gct gct		2263
Val Arg Ala Ile Asn	Ala Phe Gly Thr Ser	Glu Gln Ser Glu Ala Ala		
722	727	732	737	
ctc atc tcc acc aga	gga acc aga ttt ctc	ttg ttg aga gaa aca gct		2311
Leu Ile Ser Thr Arg	Gly Thr Arg Phe Leu	Leu Leu Arg Glu Thr Ala		
738	743	748	753	
cat cct gct cta cac	att tcc tca agt ggg	aca gtg atc agc ttt ggt		2359
His Pro Ala Leu His	Ile Ser Ser Ser Gly	Thr Val Ile Ser Phe Gly		
754	759	764	769	
gag agg aga cgg ctg	acg gaa atc ccg tca	gtg ctg ggt gag gag ctg		2407
Glu Arg Arg Arg Leu	Thr Glu Ile Pro Ser	Val Leu Gly Glu Glu Leu		
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cct tcc tgt ggc cag	cat tac tgg gaa acc	aca gtc aca gac tgc cca		2455
Pro Ser Cys Gly Gln	His Tyr Trp Glu Thr	Thr Val Thr Asp Cys Pro		
786	791	796	801	
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Ala Tyr Arg Leu Gly	Ile Cys Ser Ser Ser	Ala Val Gln Ala Gly Ala		
802	807	812	817	
cta gga caa ggg gag	acc tca tgg tac atg	cac tgc tct gag cca cag		2551
Leu Gly Gln Gly Glu	Thr Ser Trp Tyr Met	His Cys Ser Glu Pro Gln		
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aga tac aca ttt ttc	tac agt ggt att gtg	agt gat gtt cat gtg act		2599
Arg Tyr Thr Phe Phe	Tyr Ser Gly Ile Val	Ser Asp Val His Val Thr		
834	839	844	849	
gag cgt cca gcc aga	gtg ggc atc ctg ctg	gac tac aac aac cag aga		2647
Glu Arg Pro Ala Arg	Val Gly Ile Leu Leu	Asp Tyr Asn Asn Gln Arg		
850	855	860	865	
ctt atc ttc atc aac	gca gag agc gag cag	ttg ctc ttc atc atc agg		2695
Leu Ile Phe Ile Asn	Ala Glu Ser Glu Gln	Leu Leu Phe Ile Ile Arg		
866	871	876	881	
cac agg ttt aat gag	ggt gtc cac cct gcc	ttt gcc ctg gag aaa cct		2743
His Arg Phe Asn Glu	Gly Val His Pro Ala	Phe Ala Leu Glu Lys Pro		
882	887	892	897	

gga aaa tgt act ttg cac ctg ggg ata gag ccc ccg gat tct gta agg 2791
 Gly Lys Cys Thr Leu His Leu Gly Ile Glu Pro Pro Asp Ser Val Arg
 898 903 908 913

cac aag tga tccttgg ctttcagaat ttgcaagaac agcgatttga attttggggg 2847
 His Lys *
 914

ggtctgctgt tcattccttt aggtgctata cattattcaa aaagtctccc gcgcatttgc 2907

actaatgatg gctgcatgca tagcaatcag catgtgagca aaatcgacaa gaaaaccttg 2967

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 Lys Arg Ala Ala Leu Phe Phe Ala Ala Val Ala Ile Val Leu Gly Leu
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 Pro Leu Trp Trp Lys Thr Thr Glu Thr Tyr Arg Ala Ser Leu Pro Tyr
 33 38 43 48

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 Ser Gln Ile Ser Gly Leu Asn Ala Leu Gln Leu Arg Leu Met Val Pro
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Val Thr Val Val Phe Thr Arg Glu Ser Val Pro Leu Asp Asp Gln Glu	
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Lys Leu Pro Phe Thr Val Val His Glu Arg Glu Ile Pro Leu Lys Tyr	
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aaa atg aaa atc aaa tgc cgt ttc cag aag gcc tat cgg agg gct ttg	336
Lys Met Lys Ile Lys Cys Arg Phe Gln Lys Ala Tyr Arg Arg Ala Leu	
97 102 107 112	
gac cat gag gag gag gcc ctg tca tcg ggc agt gtg caa gag gca gaa	384
Asp His Glu Glu Glu Ala Leu Ser Ser Gly Ser Val Gln Glu Ala Glu	
113 118 123 128	
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Ala Met Leu Asp Glu Pro Gln Glu Gln Ala Glu Gly Ser Leu Thr Val	
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Tyr Val Ile Ser Glu His Ser Ser Leu Leu Pro Gln Asp Met Met Ser	
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Tyr Ile Gly Pro Lys Arg Thr Ala Val Val Arg Gly Ile Met His Arg	
161 166 171 176	
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Glu Ala Phe Asn Ile Ile Gly Arg Arg Ile Val Gln Val Ala Gln Ala	
177 182 187 192	
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Met Ser Leu Thr Glu Asp Val Leu Ala Ala Ala Leu Ala Asp His Leu	
193 198 203 208	
cca gag gac aag tgg agc gct gag aag agg cgg cct ctc aag tcc agc	672
Pro Glu Asp Lys Trp Ser Ala Glu Lys Arg Arg Pro Leu Lys Ser Ser	
209 214 219 224	
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Leu Gly Tyr Glu Ile Thr Phe Ser Leu Leu Asn Pro Asp Pro Lys Ser	
225 230 235 240	
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His Asp Val Tyr Trp Asp Ile Glu Gly Ala Val Arg Arg Tyr Val Gln	
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Pro Phe Leu Asn Ala Leu Gly Ala Ala Gly Asn Phe Ser Val Asp Ser	
257 262 267 272	
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Gln Ile Leu Tyr Tyr Ala Met Leu Gly Val Asn Pro Arg Phe Asp Ser	
273 278 283 288	

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Ala Ser Ser Ser Tyr Tyr Leu Asp Met His Ser Leu Pro His Val Ile	
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Asn Pro Val Glu Ser Arg Leu Gly Ser Ser Ala Ala Ser Leu Tyr Pro	
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gtg ctc aac ttt cta ctc tac gtg cct gag ctt gca cac tca ccg ctg	1008
Val Leu Asn Phe Leu Leu Tyr Val Pro Glu Leu Ala His Ser Pro Leu	
321 326 331 336	
tac att cag gac aag gat ggc gct cca gtg gcc acc aat gcc ttc cat	1056
Tyr Ile Gln Asp Lys Asp Gly Ala Pro Val Ala Thr Asn Ala Phe His	
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agt ccc cgc tgg ggt ggc att atg gta tat aat gtt gac tcc aaa acc	1104
Ser Pro Arg Trp Gly Gly Ile Met Val Tyr Asn Val Asp Ser Lys Thr	
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Tyr Asn Ala Ser Val Leu Pro Val Arg Val Glu Val Asp Met Val Arg	
369 374 379 384	
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Val Met Glu Val Phe Leu Ala Gln Leu Arg Leu Leu Phe Gly Ile Ala	
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Gln Pro Gln Leu Pro Pro Lys Cys Leu Leu Ser Gly Pro Thr Ser Glu	
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Gly Leu Met Thr Trp Glu Leu Asp Arg Leu Leu Trp Ala Arg Ser Val	
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Glu Asn Leu Ala Thr Ala Thr Thr Thr Leu Thr Ser Leu Ala Gln Leu	
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Leu Gly Lys Ile Ser Asn Ile Val Ile Lys Asp Asp Val Ala Ser Glu	
449 454 459 464	
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Val Tyr Lys Ala Val Ala Ala Val Gln Lys Ser Ala Glu Glu Leu Ala	
465 470 475 480	
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Ser Gly His Leu Ala Ser Ala Phe Val Ala Ser Gln Glu Ala Val Thr	
481 486 491 496	
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Ser Ser Glu Leu Ala Phe Phe Asp Pro Ser Leu Leu His Leu Leu Tyr	
497 502 507 512	
ttc cct gat gac cag aag ttt gcc atc tac atc cca ctc ttc ctg cct	1584

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529					534					539					544		
cgc	aag	tcc	tgg	aga	aag	cct	gag	aag	aca	gac	tga					1668	
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Gly Pro Glu Gln Ile	Thr Leu Glu Ala Ser	Ser Thr Glu Gly His	Pro	
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gaa aaa aaa aaa atg gaa ttg aaa tta aaa gaa aag aat gat ttg gat	1695
Glu Lys Lys Lys Met Glu Leu Lys Leu Lys Glu Lys Asn Asp Leu Asp	
520 525 530 535	
gaa ttt gag gct cta gaa aga aaa act aaa aaa gat caa gag atg caa	1743
Glu Phe Glu Ala Leu Glu Arg Lys Thr Lys Lys Asp Gln Glu Met Gln	
536 541 546 551	
cta att cat gaa att tcg aac tta aag aat tta gtt aag cat cga gaa	1791
Leu Ile His Glu Ile Ser Asn Leu Lys Asn Leu Val Lys His Arg Glu	
552 557 562 567	
gta tat aat caa gat ctt gag aat gaa ctc agt tca aaa gta gag ctg	1839
Val Tyr Asn Gln Asp Leu Glu Asn Glu Leu Ser Ser Lys Val Glu Leu	
568 573 578 583	
ctt aga gaa aag gaa gac cag att aag aag cta cag gaa tac ata gac	1887
Leu Arg Glu Lys Glu Asp Gln Ile Lys Lys Leu Gln Glu Tyr Ile Asp	
584 589 594 599	
tct caa aag cta gaa aat ata aaa atg gac ttg tca tac tca ttg gaa	1935
Ser Gln Lys Leu Glu Asn Ile Lys Met Asp Leu Ser Tyr Ser Leu Glu	
600 605 610 615	
agc att gaa gac cca aaa caa atg aag cag act ctg ttt gat gct gaa	1983
Ser Ile Glu Asp Pro Lys Gln Met Lys Gln Thr Leu Phe Asp Ala Glu	
616 621 626 631	
act gta gcc ctt gat gcc aag aga gaa tca gcc ttt ctt aga agt gaa	2031
Thr Val Ala Leu Asp Ala Lys Arg Glu Ser Ala Phe Leu Arg Ser Glu	
632 637 642 647	
aat ctg gag ttg aag gag aaa atg aaa gaa ctt gca act aca tac aag	2079
Asn Leu Glu Leu Lys Glu Lys Met Lys Glu Leu Ala Thr Thr Tyr Lys	
648 653 658 663	
caa atg gaa aat gat att cag tta tat caa agc caa ttg gag gca aaa	2127

Gln Met Glu Asn Asp	Ile Gln Leu Tyr Gln Ser Gln Leu Glu Ala Lys	
664	669	674 679
aag aaa atg caa gtt gat ctg gag aaa gaa tta caa tct gct ttt aat		2175
Lys Lys Met Gln Val Asp Leu Glu Lys Glu Leu Gln Ser Ala Phe Asn		
680	685 690 695	
gag ata aca aaa ctc acc tcc ctt ata gat ggc aaa gtt cca aaa gat		2223
Glu Ile Thr Lys Leu Thr Ser Leu Ile Asp Gly Lys Val Pro Lys Asp		
696	701 706 711	
ttg ctc tgt aat ttg gaa ttg gaa gga aag att act gat ctt cag aaa		2271
Leu Leu Cys Asn Leu Glu Leu Glu Gly Lys Ile Thr Asp Leu Gln Lys		
712	717 722 727	
gaa cta aat aaa gaa gtt gaa gaa aat gaa gct ttg cgg gaa gaa gtc		2319
Glu Leu Asn Lys Glu Val Glu Glu Asn Glu Ala Leu Arg Glu Glu Val		
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att ttg ctt tca gaa ttg aaa tct tta cct tct gaa gta gaa agg ctg		2367
Ile Leu Leu Ser Glu Leu Lys Ser Leu Pro Ser Glu Val Glu Arg Leu		
744	749 754 759	
agg aaa gag ata caa gac aaa tct gaa gag ctc cat ata ata aca tca		2415
Arg Lys Glu Ile Gln Asp Lys Ser Glu Glu Leu His Ile Ile Thr Ser		
760	765 770 775	
gaa aaa gat aaa ttg ttt tct gaa gta gtt cat aag gag agt aga gtt		2463
Glu Lys Asp Lys Leu Phe Ser Glu Val Val His Lys Glu Ser Arg Val		
776	781 786 791	
caa ggt tta ctt gaa gaa att ggg aaa aca aaa gat gac cta gca act		2511
Gln Gly Leu Leu Glu Glu Ile Gly Lys Thr Lys Asp Asp Leu Ala Thr		
792	797 802 807	
aca cag tcg aat tat aaa agc act gat caa gaa ttc caa aat ttc aaa		2559
Thr Gln Ser Asn Tyr Lys Ser Thr Asp Gln Glu Phe Gln Asn Phe Lys		
808	813 818 823	
acc ctt cat atg gac ttt gag caa aag tat aag atg gtc ctt gag gag		2607
Thr Leu His Met Asp Phe Glu Gln Lys Tyr Lys Met Val Leu Glu Glu		
824	829 834 839	
aat gag aga atg aat cag gaa ata gtt aat ctc tct aaa gaa gcc caa		2655
Asn Glu Arg Met Asn Gln Glu Ile Val Asn Leu Ser Lys Glu Ala Gln		
840	845 850 855	
aaa ttt gat tcg agt ttg ggt gct ttg aag acc gag ctt tct tac aag		2703
Lys Phe Asp Ser Ser Leu Gly Ala Leu Lys Thr Glu Leu Ser Tyr Lys		
856	861 866 871	
acc caa gaa ctt cag gag aaa aca cgt gag gtt caa gaa aga cta aat		2751
Thr Gln Glu Leu Gln Glu Lys Thr Arg Glu Val Gln Glu Arg Leu Asn		
872	877 882 887	
gag atg gaa cag ctg aag gaa caa tta gaa aat aga gat tct ccg ctg		2799
Glu Met Glu Gln Leu Lys Glu Gln Leu Glu Asn Arg Asp Ser Pro Leu		

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Lys Leu Lys Glu Lys Ser Gln Gln Leu Gln Glu Lys Gln Gln Gln Leu	
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1176 1181 1186 1191	
tat gag gaa gtg aaa tct ata acc aaa gaa aga aaa gtt cta aag gaa	3711
Tyr Glu Glu Val Lys Ser Ile Thr Lys Glu Arg Lys Val Leu Lys Glu	
1192 1197 1202 1207	
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Leu Gln Lys Ser Phe Glu Thr Glu Arg Asp His Leu Arg Gly Tyr Ile	
1208 1213 1218 1223	
aga gaa att gaa gct aca ggc cta caa acc aaa gaa gaa cta aaa att	3807
Arg Glu Ile Glu Ala Thr Gly Leu Gln Thr Lys Glu Glu Leu Lys Ile	
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Ala His Ile His Leu Lys Glu His Gln Glu Thr Ile Asp Glu Leu Arg	
1240 1245 1250 1255	
aga agc gta tct gag aag aca gct caa ata ata aat act cag gac tta	3903
Arg Ser Val Ser Glu Lys Thr Ala Gln Ile Ile Asn Thr Gln Asp Leu	
1256 1261 1266 1271	
gaa aaa tcc cat acc aaa tta caa gaa gag atc cca gtg ctt cat gag	3951
Glu Lys Ser His Thr Lys Leu Gln Glu Glu Ile Pro Val Leu His Glu	
1272 1277 1282 1287	
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Glu Gln Glu Leu Leu Pro Asn Val Lys Lys Val Ser Glu Thr Gln Glu	
1288 1293 1298 1303	
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1304 1309 1314 1319	
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Ser Thr Thr Leu Ala Arg Ile Glu Met Glu Arg Leu Arg Leu Asn Glu	
1320 1325 1330 1335	
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Lys Phe Gln Glu Ser Gln Glu Glu Ile Lys Ser Leu Thr Lys Glu Arg	
1336 1341 1346 1351	

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Asp Asn Leu Lys Thr Ile Lys Glu Ala Leu Glu Val Lys His Asp Gln	
1352 1357 1362 1367	
ctg aaa gaa cat att aga gaa act ttg gct aaa atc cag gag tct caa	4239
Leu Lys Glu His Ile Arg Glu Thr Leu Ala Lys Ile Gln Glu Ser Gln	
1368 1373 1378 1383	
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Ser Lys Gln Glu Gln Ser Leu Asn Met Lys Glu Lys Asp Asn Glu Thr	
1384 1389 1394 1399	
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Thr Lys Ile Val Ser Glu Met Glu Gln Phe Lys Pro Lys Asp Ser Ala	
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Glu Ser His Asp Glu Met Lys Ser Val Ala Lys Glu Lys Asp Asp Leu	
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Gln Arg Leu Gln Glu Val Leu Gln Ser Glu Ser Asp Gln Leu Lys Glu	
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Asn Ile Lys Glu Ile Val Ala Lys His Leu Glu Thr Glu Glu Glu Leu	
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Lys Val Ala His Cys Cys Leu Lys Glu Gln Glu Glu Thr Ile Asn Glu	
1480 1485 1490 1495	
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Leu Arg Val Asn Leu Ser Glu Lys Glu Thr Glu Ile Ser Thr Ile Gln	
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Lys Gln Leu Glu Ala Ile Asn Asp Lys Leu Gln Asn Lys Ile Gln Glu	
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Ile Tyr Glu Lys Glu Glu Gln Leu Asn Ile Lys Gln Ile Ser Glu Val	
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Gln Glu Lys Val Asn Glu Leu Lys Gln Phe Lys Glu His Arg Lys Ala	
1544 1549 1554 1559	
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1592	1597 1602 1607
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Gln Leu Lys Glu Asn Thr Lys Glu Ile Val Ala Lys Met Lys Glu Ser	
1608	1613 1618 1623
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1624	1629 1634 1639
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1688	1693 1698 1703
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1720	1725 1730 1735
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Ser Asn Met Gln Lys Asp Leu Glu His Ser Asn Asp Ala Leu Lys Ala	
1752	1757 1762 1767
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Gln Asp Leu Lys Ile Gln Glu Glu Leu Arg Ile Ala His Met His Leu	
1768	1773 1778 1783
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Lys Glu Gln Gln Glu Thr Ile Asp Lys Leu Arg Gly Ile Val Ser Glu	
1784	1789 1794 1799
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Lys Thr Asp Lys Leu Ser Asn Met Gln Lys Asp Leu Glu Asn Ser Asn	

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Ala Lys Leu Gln Glu Lys Ile Gln Glu Leu Lys Ala Asn Glu His Gln				
1816	1821	1826	1831	
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Leu Ile Thr Leu Lys Lys Asp Val Asn Glu Thr Gln Lys Lys Val Ser				
1832	1837	1842	1847	
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Glu Met Glu Gln Leu Lys Lys Gln Ile Lys Asp Gln Ser Leu Thr Leu				
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Ser Lys Leu Glu Ile Glu Asn Leu Asn Leu Ala Gln Glu Leu His Glu				
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Asn Leu Glu Glu Met Lys Ser Val Met Lys Glu Arg Asp Asn Leu Arg				
1880	1885	1890	1895	
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Arg Val Glu Glu Thr Leu Lys Leu Glu Arg Asp Gln Leu Lys Glu Ser				
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Leu Gln Glu Thr Lys Ala Arg Asp Leu Glu Ile Gln Gln Glu Leu Lys				
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Thr Ala Arg Met Leu Ser Lys Glu His Lys Glu Thr Val Asp Lys Leu				
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Arg Glu Lys Ile Ser Glu Lys Thr Ile Gln Ile Ser Asp Ile Gln Lys				
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Asp Leu Asp Lys Ser Lys Asp Glu Leu Gln Lys Lys Ile Gln Glu Leu				
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Gln Lys Lys Glu Leu Gln Leu Leu Arg Val Lys Glu Asp Val Asn Met				
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Ser His Lys Lys Ile Asn Glu Met Glu Gln Leu Lys Lys Gln Phe Glu				
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Pro Asn Tyr Leu Cys Lys Cys Glu Met Asp Asn Phe Gln Leu Thr Lys				
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Lys Leu His Glu Ser Leu Glu Glu Ile Arg Ile Val Ala Lys Glu Arg				
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89 94 99 104

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Asn Leu Thr Leu Asp Asn Arg Val Ala Asp Gln Leu Trp Val Pro Asp
105 110 115 120

acc tac ttt ctg aat gac aag aaa tca ttt gtg cat ggg gtc aca gtg 495
Thr Tyr Phe Leu Asn Asp Lys Lys Ser Phe Val His Gly Val Thr Val
121 126 131 136

aaa aat cga atg att cga ctg cat cct gat gga aca gtt ctc tat gga 543
Lys Asn Arg Met Ile Arg Leu His Pro Asp Gly Thr Val Leu Tyr Gly

137	142	147	152	
ctc cga atc aca acc	aca gct gca tgt atg	atg gat ctt cga aga tat	591	
Leu Arg Ile Thr Thr	Thr Ala Ala Cys Met	Met Asp Leu Arg Arg Tyr		
153	158	163	168	
cca ctg gat gag cag	aac tgc acc ctg gag	atc gaa agt tat ggc tat	639	
Pro Leu Asp Glu Gln	Asn Cys Thr Leu Glu	Ile Glu Ser Tyr Gly Tyr		
169	174	179	184	
acc act gat gac att	gaa ttt tac tgg aat	gga gga gaa ggg gca gtc	687	
Thr Thr Asp Asp Ile	Glu Phe Tyr Trp Asn	Gly Gly Glu Gly Ala Val		
185	190	195	200	
act ggt gtt aat aaa	atc gaa ctt cct caa	ttt tca att gtt gac tac	735	
Thr Gly Val Asn Lys	Ile Glu Leu Pro Gln	Phe Ser Ile Val Asp Tyr		
201	206	211	216	
aag atg gtg tct aag	aag gtg gag ttc aca	aca gga gcg tat cca cga	783	
Lys Met Val Ser Lys	Lys Val Glu Phe Thr	Thr Gly Ala Tyr Pro Arg		
217	222	227	232	
ctg tca cta agt ttt	cgt cta aag aga aac	att ggt tac ttc att ttg	831	
Leu Ser Leu Ser Phe	Arg Leu Lys Arg Asn	Ile Gly Tyr Phe Ile Leu		
233	238	243	248	
caa acc tac atg cct	tct aca ctg att aca	att ctg tcc tgg gtg tct	879	
Gln Thr Tyr Met Pro	Ser Thr Leu Ile Thr	Ile Leu Ser Trp Val Ser		
249	254	259	264	
ttt tgg atc aac tat	gat gca tct gca gcc	aga gtc gca cta gga atc	927	
Phe Trp Ile Asn Tyr	Asp Ala Ser Ala Ala	Arg Val Ala Leu Gly Ile		
265	270	275	280	
acg acg gtg ctt aca	atg aca acc atc agc	acc cac ctc agg gag acc	975	
Thr Thr Val Leu Thr	Met Thr Thr Ile Ser	Thr His Leu Arg Glu Thr		
281	286	291	296	
ctg cca aag atc cct	tat gtc aaa gcg att	gat att tat ctg atg ggt	1023	
Leu Pro Lys Ile Pro	Tyr Val Lys Ala Ile	Asp Ile Tyr Leu Met Gly		
297	302	307	312	
tgc ttt gtg ttt gtg	ttc ctg gct ctg ctg	gag tat gcc ttt gta aat	1071	
Cys Phe Val Phe Val	Phe Leu Ala Leu Leu	Glu Tyr Ala Phe Val Asn		
313	318	323	328	
tac atc ttc ttt ggg	aaa ggc cct cag aaa	aag gga gct agc aaa caa	1119	
Tyr Ile Phe Phe Gly	Lys Gly Pro Gln Lys	Lys Gly Ala Ser Lys Gln		
329	334	339	344	
gac cag agt gcc aat	gag aag aat aaa ctg	gag atg aat aaa gtc cag	1167	
Asp Gln Ser Ala Asn	Glu Lys Asn Lys Leu	Glu Met Asn Lys Val Gln		
345	350	355	360	
gtc gac gcc cac ggt	aac att ctc ctc agc	acc ctg gaa atc cgg aat	1215	
Val Asp Ala His Gly	Asn Ile Leu Leu Ser	Thr Leu Glu Ile Arg Asn		
361	366	371	376	

gag acg agt ggc tgc gaa gtg ctc acg agc gtg agc gac ccc aag gcc	1263
Glu Thr Ser Gly Ser Glu Val Leu Thr Ser Val Ser Asp Pro Lys Ala	
377 382 387 392	

acc atg tac tcc tat gac agc gcc agc atc cag tac cgc aag ccc ctg	1311
Thr Met Tyr Ser Tyr Asp Ser Ala Ser Ile Gln Tyr Arg Lys Pro Leu	
393 398 403 408	

agc agc cgc gag gcc tac ggg cgc gcc ctg gac cgg cac ggg gta ccc	1359
Ser Ser Arg Glu Ala Tyr Gly Arg Ala Leu Asp Arg His Gly Val Pro	
409 414 419 424	

agc aag ggg cgc atc cgc agg cgt gcc tcc cag ctc aaa gtc aag atc	1407
Ser Lys Gly Arg Ile Arg Arg Arg Ala Ser Gln Leu Lys Val Lys Ile	
425 430 435 440	

ccc gac ttg act gat gtg aat tcc ata gac aag tgg tcc cga atg ttt	1455
Pro Asp Leu Thr Asp Val Asn Ser Ile Asp Lys Trp Ser Arg Met Phe	
441 446 451 456	

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Phe Pro Ile Thr Phe Ser Leu Phe Asn Val Val Tyr Trp Leu Tyr Tyr	
457 462 467 472	

gta cac tga ggtctgt tctaattgggtt ccatttagac tactttcctc ttctattggt	1559
Val His *	
473	

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cccctggctc ggtggagcgg agaggcaggc gggcaggagc cgaggacggc	176
atg tcc	
Met Ser	
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cag gcc ccg gga gca cag ccg agc cca ccc acc gtg tac cac gaa cgg	224
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Gln	Ala	Pro	Gly	Ala	Gln	Pro	Ser	Pro	Pro	Thr	Val	Tyr	His	Glu	Arg	
3					8					13					18	
cag	cgc	ctg	gag	ctg	tgt	gct	gtc	cac	gcc	ctc	aac	aac	gtt	ctg	cag	272
Gln	Arg	Leu	Glu	Leu	Cys	Ala	Val	His	Ala	Leu	Asn	Asn	Val	Leu	Gln	
19					24					29					34	
cag	cag	ctc	ttt	agc	cag	gag	gct	gcc	gat	gag	atc	tgc	aag	agg	ttg	320
Gln	Gln	Leu	Phe	Ser	Gln	Glu	Ala	Ala	Asp	Glu	Ile	Cys	Lys	Arg	Leu	
35					40					45					50	
gcc	cca	gac	tcc	cgg	ctg	aac	cct	cat	cgc	agc	ctc	ctg	ggc	acc	ggc	368
Ala	Pro	Asp	Ser	Arg	Leu	Asn	Pro	His	Arg	Ser	Leu	Leu	Gly	Thr	Gly	
51					56					61					66	
aac	tat	gat	gtc	aat	gtg	atc	atg	gcc	gct	ctg	cag	ggg	ctg	ggc	ctg	416
Asn	Tyr	Asp	Val	Asn	Val	Ile	Met	Ala	Ala	Leu	Gln	Gly	Leu	Gly	Leu	
67					72					77					82	
gcc	gcc	gtg	tgg	tgg	gac	agg	agg	agg	ccc	ctg	tcc	cag	ctg	gcc	ctg	464
Ala	Ala	Val	Trp	Trp	Asp	Arg	Arg	Arg	Pro	Leu	Ser	Gln	Leu	Ala	Leu	
83					88					93					98	
ccc	cag	gta	ctg	ggg	ctg	atc	ctg	aac	ctg	ccc	tgc	ccc	gtg	tgc	ctg	512
Pro	Gln	Val	Leu	Gly	Leu	Ile	Leu	Asn	Leu	Pro	Ser	Pro	Val	Ser	Leu	
99					104					109					114	
ggg	ctg	ctg	tca	ctg	cgg	ctg	cgc	cgg	cgg	cac	tgg	gtg	gcc	ctg	cgc	560
Gly	Leu	Leu	Ser	Leu	Pro	Leu	Arg	Arg	Arg	His	Trp	Val	Ala	Leu	Arg	
115					120					125					130	
cag	gtg	gac	ggt	gtc	tac	tac	aac	ctg	gac	tcc	aag	ctg	cgg	gcg	ccc	608
Gln	Val	Asp	Gly	Val	Tyr	Tyr	Asn	Leu	Asp	Ser	Lys	Leu	Arg	Ala	Pro	
131					136					141					146	
gag	gcc	ctg	ggg	gat	gag	gac	gga	gtc	agg	gcc	ttc	ctg	gcg	gct	gcg	656
Glu	Ala	Leu	Gly	Asp	Glu	Asp	Gly	Val	Arg	Ala	Phe	Leu	Ala	Ala	Ala	
147					152					157					162	
ctg	gcc	cag	ggc	ctg	tgc	gag	gtg	ctg	ctg	gta	gtg	acc	aag	gag	gtg	704
Leu	Ala	Gln	Gly	Leu	Cys	Glu	Val	Leu	Leu	Val	Val	Thr	Lys	Glu	Val	
163					168					173					178	
gag	gag	aag	ggc	agc	tgg	ctg	cgg	aca	gac	tga	ccatggct	gaccatcggc				755
Glu	Glu	Lys	Gly	Ser	Trp	Leu	Arg	Thr	Asp	*						
179					184					189						
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gccagcactt	catggaccct	ggggaggccc	cgccccctcc	ccacaccct	gctccccact											875
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gtcggggctg cagcggcggg agggagccca gtggaggcgc cctcccgaag cgccactgcc      240

catgctgacc acccagccct ccggctgctg atgtc   atg agt aac acc act gtg      293
                               Met Ser Asn Thr Thr Val
                               1

ccc aat gcc ccc cag gcc aac agc gac tcc atg gtg ggc tat gtg ttg      341
Pro Asn Ala Pro Gln Ala Asn Ser Asp Ser Met Val Gly Tyr Val Leu
   7                      12                      17                      22

ggg ccc ttc ttc ctc atc acc ctg gtc ggg gtg gtg gtg gct gtg gta      389
Gly Pro Phe Phe Leu Ile Thr Leu Val Gly Val Val Val Ala Val Val
  23                      28                      33                      38

atg tat gta cag aaa aaa aag cgg gtg gac cgg ctg cgc cat cac ctg      437
Met Tyr Val Gln Lys Lys Lys Arg Val Asp Arg Leu Arg His His Leu
  39                      44                      49                      54

ctc ccc atg tac agc tat gac cca gct gag gaa ctg cat gag gct gag      485
Leu Pro Met Tyr Ser Tyr Asp Pro Ala Glu Glu Leu His Glu Ala Glu
  55                      60                      65                      70

cag gag ctg ctc tct gac atg gga gac ccc aag gtg gta cat ggc tgg      533
Gln Glu Leu Leu Ser Asp Met Gly Asp Pro Lys Val Val His Gly Trp
  71                      76                      81                      86

cag agt ggc tac cag cac aag cgg atg cca ctg ctg gat gtc aag acg      581
Gln Ser Gly Tyr Gln His Lys Arg Met Pro Leu Leu Asp Val Lys Thr
  87                      92                      97                      102

tga cctg acccccttgc cccacccttc agagcctggg gtcctggact gcctggggcc      638
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103

ctgccatttg cttcccttgc tgtcacctgg ctcccccctgc tgggtgctgg gtttccattt      698

ttccctccac ccaccctcaa cagcatttgc tttccatgcc ctcaccatca cctcactgcc      758

cccaggcctt ttgccctttg tgggtgttga gctccccgcc cccccccagg cactcatagg      818

aaaaggcttt ccttttggga tggcggcggc tggtaaacc ctttgctttt tctagccctc      878

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aaaaaaa 1005

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Met Ser Thr Asp Asp Gln Gln Lys Ile Gln
1 5
gca gct gca ttt gac aaa ggt gat gat cga aga ctt ggc aaa aag cct 158
Ala Ala Ala Phe Asp Lys Gly Asp Asp Arg Arg Leu Gly Lys Lys Pro
11 16 21 26
ata ttc agt agc tcg cag caa agg aaa caa gtt tct gac tct ggt gat 206
Ile Phe Ser Ser Ser Gln Gln Arg Lys Gln Val Ser Asp Ser Gly Asp
27 32 37 42
ata aaa atc aaa tct tgg agg gga aat aac aag aaa gag tgt tgg agt 254
Ile Lys Ile Lys Ser Trp Arg Gly Asn Asn Lys Lys Glu Cys Trp Ser
43 48 53 58
tat ctc tct act aat aaa aag atg aaa tct gat gga tta gga gca tct 302
Tyr Leu Ser Thr Asn Lys Lys Met Lys Ser Asp Gly Leu Gly Ala Ser
59 64 69 74
gga cat tcg tca agt acc aat aga aat agt ata aat aaa act ctg aag 350
Gly His Ser Ser Ser Thr Asn Arg Asn Ser Ile Asn Lys Thr Leu Lys
75 80 85 90
caa gat gat gta aag gaa aaa gat ggt aca aaa ata gca tct aag att 398
Gln Asp Asp Val Lys Glu Lys Asp Gly Thr Lys Ile Ala Ser Lys Ile
91 96 101 106
aca aaa gaa cta aaa act ggg gga aaa aat gtt tct gga aag ccc aaa 446
Thr Lys Glu Leu Lys Thr Gly Gly Lys Asn Val Ser Gly Lys Pro Lys
107 112 117 122
act gta aca aaa tcc aaa aca gaa aat ggt gat aag gca cgg ttg gaa 494
Thr Val Thr Lys Ser Lys Thr Glu Asn Gly Asp Lys Ala Arg Leu Glu
123 128 133 138

aac atg tca cct aga caa gtt gta gaa aga tca gca aca gca gca gca	542
Asn Met Ser Pro Arg Gln Val Val Glu Arg Ser Ala Thr Ala Ala Ala	
139 144 149 154	
gca gca act gga cag aag aat tta cta aat gga aaa gga gtg aga aat	590
Ala Ala Thr Gly Gln Lys Asn Leu Leu Asn Gly Lys Gly Val Arg Asn	
155 160 165 170	
cag gaa ggg caa att tca ggt gcc aga ccc aag gta ctc aca gga aac	638
Gln Glu Gly Gln Ile Ser Gly Ala Arg Pro Lys Val Leu Thr Gly Asn	
171 176 181 186	
tta aat gtg caa gcc aaa gca aag cct ttg aag aaa gct aca ggg aag	686
Leu Asn Val Gln Ala Lys Ala Lys Pro Leu Lys Lys Ala Thr Gly Lys	
187 192 197 202	
gat tca cca tgc ctc agc atc gca gga ccc tcc agc aga tcc aca gat	734
Asp Ser Pro Cys Leu Ser Ile Ala Gly Pro Ser Ser Arg Ser Thr Asp	
203 208 213 218	
tca agt atg gaa ttc tca att tcc act gaa tgt ctg gat gaa ccg aaa	782
Ser Ser Met Glu Phe Ser Ile Ser Thr Glu Cys Leu Asp Glu Pro Lys	
219 224 229 234	
gaa aat gga tca aca gaa gaa gaa aag cct tct gga cat aaa cta tcc	830
Glu Asn Gly Ser Thr Glu Glu Glu Lys Pro Ser Gly His Lys Leu Ser	
235 240 245 250	
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Phe Cys Asp Ser Pro Gly Gln Met Met Lys Asn Ser Val Asp Ser Val	
251 256 261 266	
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Lys Asn Ser Thr Val Ala Ile Lys Ser Arg Pro Val Ser Arg Val Thr	
267 272 277 282	
aat gga act tcc aat aaa aaa agt att cat gaa caa gac act aat gta	974
Asn Gly Thr Ser Asn Lys Lys Ser Ile His Glu Gln Asp Thr Asn Val	
283 288 293 298	
aat aac agt gta cta aag aaa gtc agt ggc aaa gga tgt agt gag cca	1022
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Val Pro Gln Ala Ile Leu Lys Lys Arg Gly Thr Ser Asn Gly Cys Thr	
315 320 325 330	
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Ala Ala Gln Gln Arg Thr Lys Ser Thr Pro Ser Asn Leu Thr Lys Thr	
331 336 341 346	
caa gga tcc caa gga gag tca cca aac tca gta aaa tct tca gtc tct	1166
Gln Gly Ser Gln Gly Glu Ser Pro Asn Ser Val Lys Ser Ser Val Ser	
347 352 357 362	
tca agg cag tct gat gaa aat gtg gca aag ttg gac cac aat aca act	1214

Ser	Arg	Gln	Ser	Asp	Glu	Asn	Val	Ala	Lys	Leu	Asp	His	Asn	Thr	Thr	
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Thr	Glu	Lys	Gln	Ala	Pro	Lys	Arg	Lys	Met	Val	Lys	Gln	Val	His	Thr	
379					384					389					394	
gct	ttg	cct	aag	gtt	aat	gca	aaa	ata	gtg	gca	atg	cct	aaa	aat	cta	1310
Ala	Leu	Pro	Lys	Val	Asn	Ala	Lys	Ile	Val	Ala	Met	Pro	Lys	Asn	Leu	
395					400					405					410	
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Asn	Gln	Ser	Lys	Lys	Gly	Glu	Thr	Leu	Asn	Asn	Lys	Asp	Ser	Lys	Gln	
411					416					421					426	
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Lys	Met	Pro	Pro	Gly	Gln	Val	Ile	Ser	Lys	Thr	Gln	Pro	Ser	Ser	Gln	
427					432					437					442	
aga	cct	tta	aaa	cat	gaa	aca	tct	act	gtc	caa	aaa	agt	atg	ttt	cat	1454
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443					448					453					458	
gat	gtg	cgt	gat	aat	aac	aac	aag	gac	agt	gtt	tct	gaa	cag	aag	cct	1502
Asp	Val	Arg	Asp	Asn	Asn	Asn	Lys	Asp	Ser	Val	Ser	Glu	Gln	Lys	Pro	
459					464					469					474	
cac	aaa	cct	ctc	att	aat	ctt	gca	tct	gaa	ata	agt	gat	gca	gaa	gca	1550
His	Lys	Pro	Leu	Ile	Asn	Leu	Ala	Ser	Glu	Ile	Ser	Asp	Ala	Glu	Ala	
475					480					485					490	
ctc	cag	tca	tcc	tgc	agg	cct	gac	cca	caa	aag	cca	tta	aac	gat	caa	1598
Leu	Gln	Ser	Ser	Cys	Arg	Pro	Asp	Pro	Gln	Lys	Pro	Leu	Asn	Asp	Gln	
491					496					501					506	
gaa	aaa	gag	aag	ttg	gcg	tta	gaa	tgc	caa	aat	att	tca	aag	ctg	gat	1646
Glu	Lys	Glu	Lys	Leu	Ala	Leu	Glu	Cys	Gln	Asn	Ile	Ser	Lys	Leu	Asp	
507					512					517					522	
aaa	tca	tta	aaa	cac	gaa	ctg	gaa	tca	aaa	cag	att	tgt	tta	gat	aaa	1694
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Ser	Glu	Thr	Lys	Phe	Pro	Asn	His	Lys	Glu	Thr	Asp	Asp	Cys	Asp	Ala	
539					544					549					554	
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Ala	Asn	Ile	Cys	Cys	His	Ser	Val	Gly	Ser	Asp	Asn	Val	Asn	Ser	Lys	
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Phe	Tyr	Ser	Thr	Thr	Ala	Leu	Lys	Tyr	Met	Val	Ser	Asn	Pro	Asn	Glu	
571					576					581					586	
aac	tcc	ttg	aac	tct	aat	cca	gtt	tgt	gat	tta	gac	tca	aca	agt	gca	1886
Asn	Ser	Leu	Asn	Ser	Asn	Pro	Val	Cys	Asp	Leu	Asp	Ser	Thr	Ser	Ala	

587	592	597	602	
ggg caa atc cat ttg ata tca gat agg gag aac caa gta ggg aga aaa				1934
Gly Gln Ile His Leu Ile Ser Asp Arg Glu Asn Gln Val Gly Arg Lys				
603	608	613	618	
gat aca aac aaa caa tca agt att aaa tgt gtg gaa gat gtt tca ctg				1982
Asp Thr Asn Lys Gln Ser Ser Ile Lys Cys Val Glu Asp Val Ser Leu				
619	624	629	634	
tgt aat cct gaa agg aca aat ggt acc tta aat tct gct caa gaa gac				2030
Cys Asn Pro Glu Arg Thr Asn Gly Thr Leu Asn Ser Ala Gln Glu Asp				
635	640	645	650	
aaa aaa tcg aaa gtt cct gtg gaa gga ctg aca att cct agt aag ttg				2078
Lys Lys Ser Lys Val Pro Val Glu Gly Leu Thr Ile Pro Ser Lys Leu				
651	656	661	666	
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Ser Asp Glu Ser Ala Met Asp Glu Asp Lys His Ala Thr Ala Asp Ser				
667	672	677	682	
gat gta tct tcc aag tgt ttt tcg gga cag cta tca gaa aaa aat tct				2174
Asp Val Ser Ser Lys Cys Phe Ser Gly Gln Leu Ser Glu Lys Asn Ser				
683	688	693	698	
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Pro Lys Asn Met Glu Thr Ser Glu Ser Pro Glu Ser His Glu Thr Pro				
699	704	709	714	
gaa act cca ttt gtg ggt cac tgg aat ttg agt act ggt gtt ctg cat				2270
Glu Thr Pro Phe Val Gly His Trp Asn Leu Ser Thr Gly Val Leu His				
715	720	725	730	
cag cga gag agt cct gaa tct gac act ggc agt gct acc acc tcc tcc				2318
Gln Arg Glu Ser Pro Glu Ser Asp Thr Gly Ser Ala Thr Thr Ser Ser				
731	736	741	746	
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Asp Asp Ile Lys Pro Arg Ser Glu Asp Tyr Asp Ala Gly Gly Ser Gln				
747	752	757	762	
gat gat gat ggg tca aat gac aga ggt atc tct aaa tgt ggc act atg				2414
Asp Asp Asp Gly Ser Asn Asp Arg Gly Ile Ser Lys Cys Gly Thr Met				
763	768	773	778	
ctg tgc cat gat ttt ctt gga aga agt agc agt gat acc agt act cct				2462
Leu Cys His Asp Phe Leu Gly Arg Ser Ser Ser Asp Thr Ser Thr Pro				
779	784	789	794	
gaa gaa tta aaa att tat gat agt aat tta aga att gaa gta aaa atg				2510
Glu Glu Leu Lys Ile Tyr Asp Ser Asn Leu Arg Ile Glu Val Lys Met				
795	800	805	810	
aaa aag caa agt agt aat gat ctt ttc caa gtt aat tca acg agt gat				2558
Lys Lys Gln Ser Ser Asn Asp Leu Phe Gln Val Asn Ser Thr Ser Asp				
811	816	821	826	

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Val His Ser Arg Glu Arg Glu Asn Ile Pro Arg Gly Ser Val Gln Phe	
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Ala Gln Glu Ile Asp Gln Val Ser Ser Ser Ala Asp Glu Thr Glu Asp	
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Pro Ala Pro Gln Gln Phe Gln Gly Ile Ile Asn Leu Ala Phe Glu Asp	
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Ala Thr Glu Asn Glu Cys Arg Glu Phe Ser Ala Asn Lys Lys Phe Lys	
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agg tca gtt tta ctt tca gtc gat gaa tgt gaa gag ctg gga tca gat	2894
Arg Ser Val Leu Leu Ser Val Asp Glu Cys Glu Glu Leu Gly Ser Asp	
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Pro Ser Asp Val Phe Asp Gly Ile Ser His Glu His His Gly Arg Thr	
955 960 965 970	
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Cys Tyr Ser Arg Phe Ser Arg Glu Ser Glu Asp Asn Ile Leu Glu Cys	
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Lys Gln Asn Lys Gly Asn Ser Val Cys Lys Asn Glu Ser Thr Val Leu	
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Asp Leu Ser Ser Ile Asp Ser Ser Arg Lys Asn Lys Gln Ser Val Ser	
1003 1008 1013 1018	
gcc aca gaa aaa aag aac aca ata gac gtc cta tcc agt aga agc aga	3182
Ala Thr Glu Lys Lys Asn Thr Ile Asp Val Leu Ser Ser Arg Ser Arg	
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Gln Leu Leu Arg Glu Asp Lys Lys Val Asn Asn Gly Ser Asn Val Glu	
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Leu Glu Thr Gln His *
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Val Tyr Leu His Asn Pro Ser Ser Glu Glu Thr Ile Thr Leu Val Ser
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Ile Ser Ala Thr Thr Ser His Phe His Ala Ser Phe Phe Gln Asn Arg
33 38 43 48
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Lys Ile Leu Pro Gly Gly Asn Thr Ser Phe Asp Val Val Phe Leu Ala
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Arg Val Val Gly Asn Val Glu Asn Thr Leu Phe Ile Asn Thr Ser Asn
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His Gly Val Phe Thr Tyr Gln Val Phe Gly Val Gly Val Pro Asn Pro	
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Tyr Arg Leu Arg Pro Phe Leu Gly Ala Arg Val Pro Val Asn Ser Ser	
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Phe Ser Pro Ile Ile Asn Ile His Asn Pro His Ser Glu Pro Leu Gln	
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Asp	Pro	Val	Glu	Arg	Pro	Ile	Tyr	Leu	Thr	Asn	Thr	Phe	Ser	Phe	Ala	
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Ile	Leu	Ile	His	Asp	Val	Leu	Leu	Pro	Glu	Glu	Ala	Lys	Thr	Met	Phe	
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Lys	Val	His	Asn	Phe	Ser	Lys	Pro	Val	Leu	Ile	Leu	Pro	Asn	Glu	Ser	
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Gly	Tyr	Ile	Phe	Thr	Leu	Leu	Phe	Met	Pro	Ser	Thr	Ser	Ser	Met	His	
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Ile	Asp	Asn	Asn	Ile	Leu	Leu	Ile	Thr	Asn	Ala	Ser	Lys	Phe	His	Leu	
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Pro	Val	Arg	Val	Tyr	Thr	Gly	Phe	Leu	Asp	Tyr	Phe	Val	Leu	Pro	Pro	
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Lys	Ile	Glu	Glu	Arg	Phe	Ile	Asp	Phe	Gly	Val	Leu	Ser	Ala	Thr	Glu	
433					438					443					448	
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Ala	Ser	Asn	Ile	Leu	Phe	Ala	Ile	Ile	Asn	Ser	Asn	Pro	Ile	Glu	Leu	
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Ala	Ile	Lys	Ser	Trp	His	Ile	Ile	Gly	Asp	Gly	Leu	Ser	Ile	Glu	Leu	
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Glu	Phe	Glu	Lys	Ser	Ser	Leu	Ser	Asp	Gln	Ser	Ser	Val	Thr	Leu	Ala	
497					502					507					512	
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Leu Thr Ile Pro Val Lys Ala Val Ile Ala Val Gly Ser Leu Thr Cys				
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Phe Pro Lys His Val Val Leu Pro Pro Ser Phe Pro Gly Lys Ile Val				
561	566	571	576	
cat caa agt tta aat att atg aat tcc ttc tca cag aag gta aaa ata				2012
His Gln Ser Leu Asn Ile Met Asn Ser Phe Ser Gln Lys Val Lys Ile				
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Gln Gln Ile Arg Ser Leu Ser Glu Asp Val Arg Phe Tyr Tyr Lys Arg				
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Leu Arg Gly Asn Lys Glu Asp Leu Glu Pro Gly Lys Lys Ser Lys Ile				
609	614	619	624	
gca aac att tat ttt gat cct gga cta cag tgt ggg gat cat tgc tat				2156
Ala Asn Ile Tyr Phe Asp Pro Gly Leu Gln Cys Gly Asp His Cys Tyr				
625	630	635	640	
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Val Gly Leu Pro Phe Leu Ser Lys Ser Glu Pro Lys Val Gln Pro Gly				
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Val Ala Met Gln Glu Asp Met Trp Asp Ala Asp Trp Asp Leu His Gln				
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Ser Leu Phe Lys Gly Trp Thr Gly Ile Lys Glu Asn Ser Gly His Arg				
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689	694	699	704	
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Ser Lys Ile Thr Ala Glu Leu Ser Trp Pro Ser Ile Leu Ser Ser Pro				
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Arg His Leu Lys Phe Pro Leu Thr Asn Thr Asn Cys Ser Ser Glu Glu				
721	726	731	736	
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Glu Ile Thr Leu Glu Asn Pro Ala Asp Val Pro Val Tyr Val Gln Phe				
737	742	747	752	
att cct ctg got tta tat tcc aac cct tca gtg ttt gta gat aag tta				2540
Ile Pro Leu Ala Leu Tyr Ser Asn Pro Ser Val Phe Val Asp Lys Leu				
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Thr Gly Phe Met Glu Gly Leu Ser Arg His Leu Ile Leu Asn Leu Ile	
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Asn Val Arg Ala Lys Asn Ser Ser Ser Thr Ser Ser Arg Thr Ser Ala	
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Ser His Pro Glu Arg Ala Ser Ser Ala Arg His Ser Ser Glu Asp Ser	
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Asp Ile Thr Ser Leu Ile Glu Ala Met Asp Lys Asp Phe Asp His His	
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Asp Ser Pro Ala Leu Glu Val Phe Thr Glu Gln Pro Pro Ser Pro Leu	
1249 1254 1259 1264	
cca aaa agc aaa ggg aaa gga aaa cct ctt cag cgc aag gtg aaa cca	4076
Pro Lys Ser Lys Gly Lys Gly Lys Pro Leu Gln Arg Lys Val Lys Pro	
1265 1270 1275 1280	
cct aag aag caa gag gaa aag gag aag aag gga aag gga aag cca cag	4124
Pro Lys Lys Gln Glu Glu Lys Glu Lys Lys Gly Lys Gly Lys Pro Gln	
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gaa gat gag ctg aag gac tct ttg gct gat gat gat agc tcc tcc acc	4172
Glu Asp Glu Leu Lys Asp Ser Leu Ala Asp Asp Asp Ser Ser Ser Thr	
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acc aca gag acc tcc aac cct gac aca gaa ccg ctc ctc aag gag gat	4220
Thr Thr Glu Thr Ser Asn Pro Asp Thr Glu Pro Leu Leu Lys Glu Asp	
1313 1318 1323 1328	
aca gaa aag caa aag gga aaa caa gcc atg cct gaa aaa cat gaa agt	4268
Thr Glu Lys Gln Lys Gly Lys Gln Ala Met Pro Glu Lys His Glu Ser	
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Glu Met Ser Gln Val Lys Gln Lys Ser Lys Lys Leu Leu Asn Ile Lys	
1345 1350 1355 1360	
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Lys Glu Ile Pro Thr Asp Val Lys Pro Ser Ser Leu Glu Leu Pro Tyr	
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act ccc cct ttg gaa agt aag caa cgt aga aat ctc cca agc aag att	4412
Thr Pro Pro Leu Glu Ser Lys Gln Arg Arg Asn Leu Pro Ser Lys Ile	
1377 1382 1387 1392	
cct ctt cca act gca atg aca agt gga tcc aaa tca cga aat gcc cag	4460
Pro Leu Pro Thr Ala Met Thr Ser Gly Ser Lys Ser Arg Asn Ala Gln	
1393 1398 1403 1408	
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Lys Thr Lys Gly Thr Ser Lys Leu Val Asp Asn Arg Pro Pro Ala Leu	
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Ala Lys Phe Leu Pro Asn Ser Gln Glu Leu Gly Asn Thr Ser Ser Ser	
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gag ggt gaa aaa gac tct cct cca ccg gag tgg gat tcc gtt cca gtt	4604
Glu Gly Glu Lys Asp Ser Pro Pro Pro Glu Trp Asp Ser Val Pro Val	

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His Lys Pro Gly Ser Ser Thr Asp Ser Leu Tyr Lys Leu Ser Leu Gln				
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acc ctc aac gca gac att ttc tta aaa caa cgc cag acc tca ccg aca				4700
Thr Leu Asn Ala Asp Ile Phe Leu Lys Gln Arg Gln Thr Ser Pro Thr				
1473	1478	1483	1488	
cct gct tcc ccg tct ccc cca gct gcc ccc tgc ccc ttt gtg gtc cgg				4748
Pro Ala Ser Pro Ser Pro Pro Ala Ala Pro Cys Pro Phe Val Val Arg				
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ggc agc tac agc agc atc gtc aac agc agc tcc agc agt gac cct aaa				4796
Gly Ser Tyr Ser Ser Ile Val Asn Ser Ser Ser Ser Ser Asp Pro Lys				
1505	1510	1515	1520	
ata aaa cag cca aat gga agc aaa cac aag ttg aca aag gca gcc tcg				4844
Ile Lys Gln Pro Asn Gly Ser Lys His Lys Leu Thr Lys Ala Ala Ser				
1521	1526	1531	1536	
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Leu Pro Gly Lys Asn Gly Asn Pro Thr Phe Ala Ala Val Thr Ala Gly				
1537	1542	1547	1552	
tac gac aag agc cca ggt ggg aat ggc ttt gct aaa gtt tct tca aac				4940
Tyr Asp Lys Ser Pro Gly Gly Asn Gly Phe Ala Lys Val Ser Ser Asn				
1553	1558	1563	1568	
aaa aca ggt ttc tcc agc agc ctt ggc att tca cac gct cct gtt gac				4988
Lys Thr Gly Phe Ser Ser Ser Leu Gly Ile Ser His Ala Pro Val Asp				
1569	1574	1579	1584	
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Ser Asp Gly Ser Asp Ser Ser Gly Leu Trp Ser Pro Val Ser Asn Pro				
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Ser Ser Pro Asp Phe Thr Pro Leu Asn Ser Phe Ser Ala Phe Gly Asn				
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Ser Phe Asn Leu Thr Gly Glu Val Phe Ser Lys Leu Gly Leu Ser Arg				
1617	1622	1627	1632	
tcg tgc aat cag gcc tca cag agg agc tgg aac gag ttt aat agt ggc				5180
Ser Cys Asn Gln Ala Ser Gln Arg Ser Trp Asn Glu Phe Asn Ser Gly				
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cct tca tac ctt tgg gag tcg cca gcg aca gat ccc agt cct tcc tgg				5228
Pro Ser Tyr Leu Trp Glu Ser Pro Ala Thr Asp Pro Ser Pro Ser Trp				
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Pro Ala Ser Ser Gly Ser Pro Thr His Thr Ala Thr Ser Val Leu Gly				
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Asn Thr Ser Gly Leu Trp Ser Thr Thr Pro Phe Ser Ser Ser Ile Trp	
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Ser Ser Asn Leu Ser Ser Ala Leu Pro Phe Thr Thr Pro Ala Asn Thr	
1697 1702 1707 1712	
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Leu Ala Ser Ile Gly Leu Met Gly Thr Glu Asn Ser Pro Ala Pro His	
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Ala Pro Ser Thr Ser Ser Pro Ala Asp Asp Leu Gly Gln Thr Tyr Asn	
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Pro Trp Arg Ile Trp Ser Pro Thr Ile Gly Arg Arg Ser Ser Asp Pro	
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Trp Ser Asn Ser His Phe Pro His Glu Asn *	
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ttgcataatt tgaactatct ttgcattcct gggataaatc ccacttgact gtgggatatt      240
attgatttg   atg tgt tgc tgg att tgg ttt gca ggc att ttg tgc aaa      288
              Met Cys Cys Trp Ile Trp Phe Ala Gly Ile Leu Cys Lys
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aat ttt gcg agg cgg cat gag gac ctg cgg cag gcc ctc ttc ggc agt      336
Asn-Phe-Ala Arg Arg-His Glu Asp Leu Arg Gln Ala Leu Phe Gly Ser
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ctc tct ggc ccg ggt tcc ctc ggc gtg cta ctg tgc gct cga tcc agc      384
Leu Ser Gly Pro Gly Ser Leu Gly Val Leu Leu Cys Ala Arg Ser Ser
  30             35             40             45

acc atg ggg aag cgg gac aat cgg gtg gcc tat atg aac cca ata gca      432
Thr Met Gly Lys Arg Asp Asn Arg Val Ala Tyr Met Asn Pro Ile Ala
  46             51             56             61

atg gcg aga tca agg ggt cca atc cag tct tca ggg cca aca ata cag      480
Met Ala Arg Ser Arg Gly Pro Ile Gln Ser Ser Gly Pro Thr Ile Gln
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gat tat ctg aat cga cca agg cct acc tgg gaa gaa gta aaa gag caa      528
Asp Tyr Leu Asn Arg Pro Arg Pro Thr Trp Glu Glu Val Lys Glu Gln
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cta gaa aag aaa aag aaa ggc tcc aag gct ttg gct gaa ttt gaa gaa      576
Leu Glu Lys Lys Lys Lys Gly Ser Lys Ala Leu Ala Glu Phe Glu Glu
  94             99             104            109

aaa atg aat gag aac tgg aag aaa gaa ctg gaa aaa cac agg gag aaa      624
Lys Met Asn Glu Asn Trp Lys Lys Glu Leu Glu Lys His Arg Glu Lys
 110             115            120            125

ttg tta agt gga agt gag agc tca tcc aaa aaa aga cag aga aag aaa      672
Leu Leu Ser Gly Ser Glu Ser Ser Ser Lys Lys Arg Gln Arg Lys Lys
 126             131            136            141

aaa gaa aag aag aaa tct ggt agg tat tca tct tct tct tca tca agc      720
Lys Glu Lys Lys Lys Ser Gly Arg Tyr Ser Ser Ser Ser Ser Ser Ser
 142             147            152            157

tct gat tct tcc agc agt tct tct gat tct gaa gat gag gat aag aaa      768
Ser Asp Ser Ser Ser Ser Ser Ser Asp Ser Glu Asp Glu Asp Lys Lys
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174	179	184	189	
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Glu Ser Ser Met Ser Glu Thr Glu Ser Asp Ser Lys Asp Ser Leu Lys				
190	195	200	205	
aag aaa aag aag tca aaa gat gga act gag aaa gaa aag gat att aaa				912
Lys Lys Lys Lys Ser Lys Asp Gly Thr Glu Lys Glu Lys Asp Ile Lys				
206	211	216	221	
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Gly Leu Ser Lys Lys Arg Lys Met Tyr Ser Glu Asp Lys Pro Leu Ser				
222	227	232	237	
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Ser Glu Ser Leu Ser Glu Ser Glu Tyr Ile Glu Glu Val Arg Ala Lys				
238	243	248	253	
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Met Leu Ser Cys Ser Val Cys Trp Arg Arg Val Thr Trp				
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Thr	Ile	Asn	Thr	Tyr	Val	Ile	Lys	Leu	Phe	Asp	Arg	Ser	Val	Asp	Leu		
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Ala	Gln	Phe	Ser	Glu	Asn	Thr	Pro	Leu	Tyr	Pro	Ile	Cys	Arg	Ala	Trp		
46					51					56					61		
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Met	Arg	Asn	Ser	Pro	Ser	Val	Arg	Glu	Arg	Glu	Cys	Ser	Pro	Ser	Ser		
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ccc	ctg	ccc	cgc	ctg	cct	gag	gat	gag	gag	ggc	tca	gag	gta	acc	aac	530	
Pro	Leu	Pro	Pro	Leu	Pro	Glu	Asp	Glu	Glu	Gly	Ser	Glu	Val	Thr	Asn		
78					83					88					93		
agc	aag	agt	cgt	gat	gtg	tac	aag	ctg	ccg	cca	ccc	aca	ccc	ccg	ggg	578	
Ser	Lys	Ser	Arg	Asp	Val	Tyr	Lys	Leu	Pro	Pro	Pro	Thr	Pro	Pro	Gly		
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Pro	Pro	Gly	Asp	Ala	Cys	Arg	Ser	Arg	Ile	Pro	Ser	Pro	Leu	Gln	Pro		
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Glu	Met	Gln	Gly	Thr	Pro	Asp	Asp	Glu	Pro	Ser	Glu	Pro	Glu	Pro	Ser		
126					131					136					141		
ccc	tcc	aca	ctc	atc	tat	cgc	aac	atg	cag	cgc	tgg	aaa	cgc	atc	cgc	722	
Pro	Ser	Thr	Leu	Ile	Tyr	Arg	Asn	Met	Gln	Arg	Trp	Lys	Arg	Ile	Arg		
142					147					152					157		
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Gln	Arg	Trp	Lys	Glu	Ala	Ser	His	Arg	Asn	Gln	Leu	Arg	Tyr	Ser	Glu		
158					163					168					173		
agc	atg	aag	atc	cta	cga	gag	atg	tac	gaa	cga	cag	tga				809	
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Glu Glu Val Ile Ser Gln Glu Asp His Pro Cys Ile Met Trp Thr Gly	
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Gly Cys Arg Arg Ile Pro Val Leu Val Phe His Ala Asp Ala Ile Leu	
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Tyr Lys Ile Val Arg Thr Asp Ser Arg Leu Val Arg Ser Ile Leu Thr	
67 72 77 82	
gcc cat gga ttt cat gaa gtt cac cca agc agc act gac tat aac cta	824
Ala His Gly Phe His Glu Val His Pro Ser Ser Thr Asp Tyr Asn Leu	
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Met Trp Thr Gly Ser His Leu Lys Pro Phe Leu Leu Arg Thr Leu Ser	
99 104 109 114	
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Glu Ala Gln Lys Val Asn His Phe Pro Arg Ser Tyr Glu Leu Thr Arg	
115 120 125 130	
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Lys Asp Arg Leu Tyr Lys Asn Ile Ile Arg Met Gln His Thr His Gly	
131 136 141 146	
ttc aag gtt ttt cac atc ctc ccc cag acc ttc ctc ctg cca gct gag	1016

Phe	Lys	Val	Phe	His	Ile	Leu	Pro	Gln	Thr	Phe	Leu	Leu	Pro	Ala	Glu	
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Tyr	Ala	Glu	Phe	Cys	Asn	Ser	Tyr	Ser	Lys	Asp	Arg	Gly	Pro	Trp	Ile	
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Val	Lys	Pro	Val	Ala	Ser	Ser	Arg	Gly	Arg	Gly	Val	Tyr	Leu	Ile	Asn	
179					184					189					194	
aat	cca	aac	cag	atc	tcc	ctg	gaa	gag	aac	att	ttg	gtc	tcc	cgt	tac	1160
Asn	Pro	Asn	Gln	Ile	Ser	Leu	Glu	Glu	Asn	Ile	Leu	Val	Ser	Arg	Tyr	
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Tyr	Val	Leu	Val	Thr	Ser	Tyr	Asp	Pro	Leu	Val	Ile	Tyr	Leu	Tyr	Glu	
227					232					237					242	
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Glu	Gly	Leu	Ala	Arg	Phe	Ala	Thr	Val	Arg	Tyr	Asp	Gln	Gly	Ala	Lys	
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Asn	Ile	Arg	Asn	Gln	Phe	Met	His	Leu	Thr	Asn	Tyr	Ser	Val	Asn	Lys	
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Gly	Arg	Asp	Thr	Thr	Ala	Leu	Met	Ala	His	Val	Glu	Asp	Leu	Ile	Ile	
307					312					317					322	
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323					328					333					338	
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Phe	Val	Pro	His	Arg	Ser	Ser	Cys	Phe	Glu	Leu	Tyr	Gly	Phe	Asp	Val	
339					344					349					354	
ctc	ata	gat	tct	act	ctg	aag	cca	tgg	ttg	ttg	gaa	gtg	aat	ctc	tct	1640
Leu	Ile	Asp	Ser	Thr	Leu	Lys	Pro	Trp	Leu	Leu	Glu	Val	Asn	Leu	Ser	
355					360					365					370	
cct	tct	ttg	gcc	tgt	gat	gcg	cct	ctg	gac	cta	aag	att	aaa	gcc	agt	1688
Pro	Ser	Leu	Ala	Cys	Asp	Ala	Pro	Leu	Asp	Leu	Lys	Ile	Lys	Ala	Ser	

371	376	381	386	
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Met Ile Ser Asp Met Phe Thr Val Val Gly Phe Val Cys Gln Asp Pro				
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gcc cag cgg gca tca act cgg cca att tat ccc acc ttc gag tct tcc				1784
Ala Gln Arg Ala Ser Thr Arg Pro Ile Tyr Pro Thr Phe Glu Ser Ser				
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Arg Arg Asn Pro Phe Gln Lys Pro Gln Arg Cys Arg Pro Leu Ser Ala				
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Lys Val Leu Arg Arg Val Lys Glu Glu Asn Asp Arg Arg Gly Gly Phe				
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Ile Arg Ile Phe Pro Thr Ser Glu Thr Trp Glu Ile Tyr Gly Ser Tyr				
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Leu Glu His Lys Thr Ser Met Asn Tyr Met Leu Ala Thr Arg Leu Phe				
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Val Lys Thr Glu Thr Glu Ser Glu Glu Glu Glu Glu Val Ala Leu Asp				
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Asn Glu Asp Glu Glu Gln Glu Ala Ser Gln Glu Glu Ser Ala Gly Phe				
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Lys Glu Asp Glu Gln Met Glu Leu Val Val Arg Phe Leu Lys Arg Ala	
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Leu Ala Leu Leu Glu Arg Arg Arg Ile Leu Ala His Gln Leu Gly Asp	
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Val Leu Thr Phe Tyr Thr Gln Lys Asn Lys Ser Ala Ser Val Phe Leu	
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Asp Glu Lys Phe Asp Phe Asp Leu Ser Leu Ser Ser Ser Ser Ala Asn
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Lys Phe Val Glu Val Tyr Lys Glu Ala His Leu Leu Ala Leu His Ile	
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Glu Ser Ser Ser Arg Asn Gln Ala Ala Gln Ala Ala Lys Pro Glu Asp	
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Pro Arg Ser Gln Gly Val Glu Arg Phe Ile Gln Glu Ser Lys Leu Lys	
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Pro Val Gly Glu Pro Arg Leu Leu Ala Ser Ser Pro Ala Leu Pro Ser	
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Asn Val Pro Ala Ala Gly Ser His Leu Gly Gln Gly Lys Arg Ala Ile	
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Asn Ala Val Ala Gly Ala Val Lys Tyr Ser Glu Ser Ala Gly Gly Phe				
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Tyr Tyr Val Glu Ser Gly Lys Leu Phe Ser Val Thr Arg Asn Arg Phe				
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Ile His Trp Lys Thr Ser Gly Asp Thr Leu Glu Leu Met Glu Glu Ser				
69	74	79	84	
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Leu Asp Ile Asn Leu Leu Asn Asn Ala Ile Arg Leu Lys Phe Gln Asn				
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Cys Ser Val Leu Pro Gly Gly Val Tyr Val Ser Glu Thr Gln Asn Arg				
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Val Ile Ile Leu Met Leu Thr Asn Gln Thr Val His Arg Leu Leu Leu				
117	122	127	132	
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Pro His Pro Ser Arg Met Tyr Arg Ser Glu Leu Val Val Asp Ser Gln				
133	138	143	148	
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Met Gln Ser Ile Phe Thr Asp Ile Gly Lys Val Asp Phe Thr Asp Pro				
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Cys Asn Tyr Gln Leu Ile Pro Ala Val Pro Gly Ile Ser Pro Asn Ser				
165	170	175	180	
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Thr Ala Ser Thr Ala Trp Leu Ser Ser Asp Gly Glu Ala Leu Phe Ala				
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Leu Pro Cys Ala Ser Gly Gly Ile Phe Val Leu Lys Leu Pro Pro Tyr				
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Asp Ile Pro Gly Met Val Ser Val Val Glu Leu Lys Gln Ser Ser Val				
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Met Gln Arg Leu Leu Thr Gly Trp Met Pro Thr Ala Ile Arg Gly Asp				
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His Asp Ala Phe Ile Phe Ala Leu Cys Gln Asp His Lys Leu Arg Met	
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Trp Ala Leu Trp His Asp Ala Glu Asn Gln Thr Val Val Lys Tyr Ile	
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Glu Met Tyr Leu Gln Ser Leu Phe Thr Pro Gly Gln Phe Thr Asn Glu	
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Leu Asp Leu Ser Trp Ser Glu Leu Lys Lys Glu Val Thr Leu Ala Val	
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Asn Leu Gln Ser Pro Glu Lys Ala Ala Glu Gln Ile Leu Glu Asp Met	
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Ser Gly Ala Leu Met Ala Asn Arg Phe Val Ser Ser Pro Gln Thr Ile	
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Leu Asp Cys Leu Arg Gln Leu Val Val Val Cys Glu Arg Ser Gln				
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Val Gly Ile Ile Glu Ser Arg Ala Arg Ala Val Asp Leu Met Thr His				
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Asn Tyr Tyr Glu Leu Leu Tyr Ala Phe His Ile Tyr Arg His Asn Tyr				
1045	1050	1055	1060	
cgc aag gct ggc aca gtg atg ttt gag tat gga atg cgg ctt ggc aga				3511
Arg Lys Ala Gly Thr Val Met Phe Glu Tyr Gly Met Arg Leu Gly Arg				
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Glu Val Arg Thr Leu Arg Gly Leu Glu Lys Gln Gly Asn Cys Tyr Leu				
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Ala Ala Leu Asn Cys Leu Arg Leu Ile Arg Pro Glu Tyr Ala Trp Ile				
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Val Gln Pro Val Ser Gly Ala Val Tyr Asp Arg Pro Gly Ala Ser Pro				
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Lys Arg Asn His Asp Gly Glu Cys Thr Ala Ala Pro Thr Asn Arg Gln				
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att gaa atc ctg gaa ctg gaa gat ctg gag aaa gag tgt tcc ttg gct				3751
Ile Glu Ile Leu Glu Leu Glu Asp Leu Glu Lys Glu Cys Ser Leu Ala				
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cgc atc cgc ctc act ttg gct cag cat gat cca tca gcg gtt gca gtt				3799
Arg Ile Arg Leu Thr Leu Ala Gln His Asp Pro Ser Ala Val Ala Val				
1157	1162	1167	1172	

gct gga agt tca tca gca gag gaa atg gtc act ctc ttg gtt cag gcg	3847
Ala Gly Ser Ser Ser Ala Glu Glu Met Val Thr Leu Leu Val Gln Ala	
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Gly Leu Phe Asp Thr Ala Ile Ser Leu Cys Gln Thr Phe Lys Leu Pro	
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Leu Thr Pro Val Phe Glu Gly Leu Ala Phe Lys Cys Ile Lys Leu Gln	
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Phe Gly Gly Glu Ala Ala Gln Ala Glu Ala Trp Ala Trp Leu Ala Ala	
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Gln Lys Val Asp Lys Ala Thr Arg Asp Leu Leu Tyr Arg Arg Thr Leu	
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 Met His Leu Cys Gly Ser Asn Gly Leu Leu Thr Gln Thr Asp Pro Lys
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 Glu Gln Gln Arg Gln Leu Lys Lys Gln Lys Asn Arg Ala Ala Ala Gln
 17 22 27 32
 cga agc cgg cag aag cac aca gac aag gca gac gcc ctg cac cag cag 203
 Arg Ser Arg Gln Lys His Thr Asp Lys Ala Asp Ala Leu His Gln Gln
 33 38 43 48
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 His Glu Ser Leu Glu Lys Asp Asn Leu Ala Leu Arg Lys Glu Ile Gln
 49 54 59 64
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 Ser Leu Gln Ala Glu Leu Ala Trp Trp Ser Arg Thr Leu His Val His
 65 70 75 80
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 Glu Arg Leu Cys Pro Met Asp Cys Ala Ser Cys Ser Ala Pro Gly Leu
 81 86 91 96
 ctg ggc tgc tgg gac cag gct gag ggg ctc ctg ggc cct ggc cca cag 395
 Leu Gly Cys Trp Asp Gln Ala Glu Gly Leu Leu Gly Pro Gly Pro Gln
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 gga caa cat ggc tgc cgg gag cag ctg gag ctg ttc cag acc ccg ggt 443
 Gly Gln His Gly Cys Arg Glu Gln Leu Glu Leu Phe Gln Thr Pro Gly
 113 118 123 128

tcc tgt tac cca gct cag ccg ctc tct cca ggt cca cag cct cat gat	491
Ser Cys Tyr Pro Ala Gln Pro Leu Ser Pro Gly Pro Gln Pro His Asp	
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Ser Pro Ser Leu Leu Gln Cys Pro Leu Pro Ser Leu Ser Leu Gly Pro	
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Phe Ala Ser His Thr Gly Ser Ser Leu Gln Gly Ser Ser Ser Lys Leu	
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Lys Pro Ala Leu Ser Ala Ala Thr Trp Gln Gly Leu Val Val Asp Pro	
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Met Gly Ser Glu
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aac agt gct tta aag agc tat aca ctg aga gaa cca cca ttt acc tta 344
Asn Ser Ala Leu Lys Ser Tyr Thr Leu Arg Glu Pro Pro Phe Thr Leu
5 10 15 20
ccc tct gga ctt gct gtt tat ccc gct gta ctg caa gat ggc aaa ttt 392
Pro Ser Gly Leu Ala Val Tyr Pro Ala Val Leu Gln Asp Gly Lys Phe
21 26 31 36
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Ala Ser Val Phe Val Tyr Lys Arg Glu Asn Glu Asp Lys Val Asn Lys
37 42 47 52
gct gcc aag cat ttg aag aca ctt cgt cac cct tgc ttg cta aga ttt 488
Ala Ala Lys His Leu Lys Thr Leu Arg His Pro Cys Leu Leu Arg Phe
53 58 63 68
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Leu Ser Cys Thr Val Glu Ala Asp Gly Ile His Leu Val Thr Glu Arg
69 74 79 84
gta cag ccc ctg gaa gtg gct ttg gaa aca ttg tct tct gca gag gtc 584
Val Gln Pro Leu Glu Val Ala Leu Glu Thr Leu Ser Ser Ala Glu Val
85 90 95 100
tgt gct ggg atc tat gac ata ttg ctg gct ctt atc ttc ctt cat gac 632
Cys Ala Gly Ile Tyr Asp Ile Leu Leu Ala Leu Ile Phe Leu His Asp
101 106 111 116

aga gga cac cta aca cac aat aat gtc tgt tta tca tct gtg ttt gtg	680
Arg Gly His Leu Thr His Asn Asn Val Cys Leu Ser Ser Val Phe Val	
117 122 127 132	
agt gaa gat gga cac tgg aag cta gga gga atg gaa act gtt tgt aaa	728
Ser Glu Asp Gly His Trp Lys Leu Gly Gly Met Glu Thr Val Cys Lys	
133 138 143 148	
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Val Ser Gln Ala Thr Pro Glu Phe Leu Arg Ser Ile Gln Ser Ile Arg	
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Asp Pro Ala Ser Ile Pro Pro Glu Glu Met Ser Pro Glu Phe Thr Thr	
165 170 175 180	
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Leu Pro Glu Cys His Gly His Ala Arg Asp Ala Phe Ser Phe Gly Thr	
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Leu Val Glu Ser Leu Leu Thr Ile Leu Asn Glu Gln Val Ser Ala Asp	
197 202 207 212	
gtt ctc tcc agc ttt caa cag acc ttg cac tca act ttg ctg aat ccc	968
Val Leu Ser Ser Phe Gln Gln Thr Leu His Ser Thr Leu Leu Asn Pro	
213 218 223 228	
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Ile Pro Lys Cys Arg Pro Ala Leu Cys Thr Leu Leu Ser His Asp Phe	
229 234 239 244	
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Phe Arg Asn Asp Phe Leu Glu Val Val Asn Phe Leu Lys Ser Leu Thr	
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261 266 271 276	
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Arg Val Ser Cys Leu Ser Glu Glu Leu Ile Ala Ser Arg Leu Val Pro	
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Leu Leu Leu Asn Gln Leu Val Phe Ala Glu Pro Val Ala Val Lys Ser	
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Phe Leu Pro Tyr Leu Leu Gly Pro Lys Lys Asp His Ala Gln Gly Glu	
309 314 319 324	
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Thr Pro Cys Leu Leu Ser Pro Ala Leu Phe Gln Ser Arg Val Ile Pro	
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Ser	Asp	Val	Lys	Asn	Thr	Ser	Glu	Asp	Ser	Glu	Asn	Phe	Pro	Ser	Ser		
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Asp	Val	Lys	Ser	Gln	Cys	Thr	Thr	Leu	Asp	Val	Glu	Glu	Ser	Ser	Trp		
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Gly	Ile	Thr	Ala	Thr	Lys	Pro	Val	Thr	Ser	Gly	Glu	Gln	Lys	Pro	Ile		
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Pro	Ala	Leu	Leu	Ser	Leu	Thr	Glu	Glu	Ser	Met	Pro	Trp	Lys	Ser	Ser		
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Pro Val Lys Asp Pro Glu Met Asp Trp Phe Ala Asp Met Ile Pro Glu				
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Gln Lys Ala Leu Cys Ala Glu Phe Lys Met Lys Met Lys Pro Asp Ile
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 76                      81                86                91

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Tyr Ile Tyr Pro Lys Leu Lys Thr Asp Val Leu Val Leu Ser Cys Asp
 92                      97                102                107

ctg ata aca gac gtt gcc tta cat gag gtt gtg gac ctg ttt aga gct      506
Leu Ile Thr Asp Val Ala Leu His Glu Val Val Asp Leu Phe Arg Ala
108                      113                118                123

tat gat gca tca ctt gct atg ttg atg aga aaa ggc caa gat agc ata      554
Tyr Asp Ala Ser Leu Ala Met Leu Met Arg Lys Gly Gln Asp Ser Ile
124                      129                134                139

gaa cct gtt ccc ggt caa aag ggg aaa aaa aaa gca gtg gag cag cgt      602
Glu Pro Val Pro Gly Gln Lys Gly Lys Lys Lys Ala Val Glu Gln Arg
140                      145                150                155

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gac ttc att gga gtg gac agc aca gga aag agg ctg ctc ttc atg gct	650
Asp Phe Ile Gly Val Asp Ser Thr Gly Lys Arg Leu Leu Phe Met Ala	
156 161 166 171	
aat gaa gca gac ttg gat gaa gag ctg gtc att aag gga tcc atc cta	698
Asn Glu Ala Asp Leu Asp Glu Glu Leu Val Ile Lys Gly Ser Ile Leu	
172 177 182 187	
cag aag cat cct aga ata cgt ttc cac acg ggt ctt gtg gat gcc cac	746
Gln Lys His Pro Arg Ile Arg Phe His Thr Gly Leu Val Asp Ala His	
188 193 198 203	
ctc tac tgt ttg aaa aaa tac atc gtg gat ttc cta atg gaa aat ggg	794
Leu Tyr Cys Leu Lys Lys Tyr Ile Val Asp Phe Leu Met Glu Asn Gly	
204 209 214 219	
tca ata act tct atc cgg agt gaa ctg att cca tat tta gtg aga aaa	842
Ser Ile Thr Ser Ile Arg Ser Glu Leu Ile Pro Tyr Leu Val Arg Lys	
220 225 230 235	
cag ttt tcc tca gct tcc tca caa cag ggg aca agg aag gaa aaa gag	890
Gln Phe Ser Ser Ala Ser Ser Gln Gln Gly Thr Arg Lys Glu Lys Glu	
236 241 246 251	
gga ggg tct aaa gga aaa agg ggc ttg aag tcc ttt agg ata tct tac	938
Gly Gly Ser Lys Gly Lys Arg Gly Leu Lys Ser Phe Arg Ile Ser Tyr	
252 257 262 267	
agt ttt tat taa aag gaagccaatt acactggaac cggggctccc tatggatggc	993
Ser Phe Tyr *	
268	
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tggagacttt tcacctgatg gccagtttct agctacagct tctgaagaca aatccataat	180
agt atg gag cat gta tcg cca gcg ctt cct gta ttc ctt gga tcg aca	228
Met Glu His Val Ser Pro Ala Leu Pro Val Phe Leu Gly Ser Thr	
1 5 10	

tac aca ctg tgt acg ctg tgc cca att gta ccc gat gga aga cta att	276
Tyr Thr Leu Cys Thr Leu Cys Pro Ile Val Pro Asp Gly Arg Leu Ile	
16 21 26 31	
gtg tca tgt agt gag gat aaa act att aaa att tgg gat acc aca aat	324
Val Ser Cys Ser Glu Asp Lys Thr Ile Lys Ile Trp Asp Thr Thr Asn	
32 37 42 47	
aag caa tgt gtt aat aac ttc tca gat tcc gtt gga ttt gca aat ttt	372
Lys Gln Cys Val Asn Asn Phe Ser Asp Ser Val Gly Phe Ala Asn Phe	
48 53 58 63	
gtg gac ttt aac cct agt ggt aca tgc ata gct tca gca ggt tct gat	420
Val Asp Phe Asn Pro Ser Gly Thr Cys Ile Ala Ser Ala Gly Ser Asp	
64 69 74 79	
caa act gtg aaa gtc tgg gat gta aga gtg aac aaa tta cta cag cat	468
Gln Thr Val Lys Val Trp Asp Val Arg Val Asn Lys Leu Leu Gln His	
80 85 90 95	
tac caa gtt cac agc ggt gga gtt aat tgc ata tca ttc cat cct tgc	516
Tyr Gln Val His Ser Gly Gly Val Asn Cys Ile Ser Phe His Pro Ser	
96 101 106 111	
ggt aac tat ctc atc aca gct tct tca gat ggt acc ctt aag att ctg	564
Gly Asn Tyr Leu Ile Thr Ala Ser Ser Asp Gly Thr Leu Lys Ile Leu	
112 117 122 127	
gac ctc tta gaa gga agg ctc atc tat aca ctt caa gga cat acg gga	612
Asp Leu Leu Glu Gly Arg Leu Ile Tyr Thr Leu Gln Gly His Thr Gly	
128 133 138 143	
cct gtc ttt act gtt tca ttt tca aaa ggt gga gag cta ttt gca tca	660
Pro Val Phe Thr Val Ser Phe Ser Lys Gly Gly Glu Leu Phe Ala Ser	
144 149 154 159	
gga ggt gca gac aca cag gtc tta tta tgg agg act aac ttt gat gaa	708
Gly Gly Ala Asp Thr Gln Val Leu Leu Trp Arg Thr Asn Phe Asp Glu	
160 165 170 175	
ttg cat tgt aaa ggt ctt acc aaa aga aat ctc aaa aga tta cat ttt	756
Leu His Cys Lys Gly Leu Thr Lys Arg Asn Leu Lys Arg Leu His Phe	
176 181 186 191	
gat tca cca cca cat ctt ctt gat atc tac cca aga aca cca cat ccc	804
Asp Ser Pro Pro His Leu Leu Asp Ile Tyr Pro Arg Thr Pro His Pro	
192 197 202 207	
cat gag gaa aaa gtt gag act gta gaa att aat cca aag ctt gag gta	852
His Glu Glu Lys Val Glu Thr Val Glu Ile Asn Pro Lys Leu Glu Val	
208 213 218 223	
atc gat ttg cag atc tct act ccc cct gtt atg gat atc ctt tct ttt	900
Ile Asp Leu Gln Ile Ser Thr Pro Pro Val Met Asp Ile Leu Ser Phe	
224 229 234 239	
gat tct acc aca aca aca gaa acc agt ggt agg act ctg cca gac aag	948

Asp	Ser	Thr	Thr	Thr	Thr	Glu	Thr	Ser	Gly	Arg	Thr	Leu	Pro	Asp	Lys	
240						245				250					255	
ggt	gaa	gag	gcc	tgt	gga	tat	ttc	ttg	aac	cct	tcc	tta	atg	tca	cca	996
Gly	Glu	Glu	Ala	Cys	Gly	Tyr	Phe	Leu	Asn	Pro	Ser	Leu	Met	Ser	Pro	
256					261					266					271	
gaa	tgt	ttg	cca	aca	acc	acg	aaa	aag	aaa	aca	gaa	gac	atg	agt	gac	1044
Glu	Cys	Leu	Pro	Thr	Thr	Thr	Lys	Lys	Lys	Thr	Glu	Asp	Met	Ser	Asp	
272					277					282					287	
ctc	ccc	tgt	gaa	agt	caa	agg	agc	ata	cct	ctc	gct	gtg	act	gat	gct	1092
Leu	Pro	Cys	Glu	Ser	Gln	Arg	Ser	Ile	Pro	Leu	Ala	Val	Thr	Asp	Ala	
288					293					298					303	
tta	gag	cat	att	atg	gaa	caa	ctc	aat	gtt	ttg	aca	cag	act	gtt	tca	1140
Leu	Glu	His	Ile	Met	Glu	Gln	Leu	Asn	Val	Leu	Thr	Gln	Thr	Val	Ser	
304					309					314					319	
atc	ttg	gag	cag	cga	ctg	act	ttg	aca	gag	gat	aag	ctg	aaa	gac	tgc	1188
Ile	Leu	Glu	Gln	Arg	Leu	Thr	Leu	Thr	Glu	Asp	Lys	Leu	Lys	Asp	Cys	
320					325					330					335	
ctt	gaa	aat	cag	caa	aag	ctt	ttc	agt	gct	gtc	caa	cag	aaa	agc	tga	1236
Leu	Glu	Asn	Gln	Gln	Lys	Leu	Phe	Ser	Ala	Val	Gln	Gln	Lys	Ser	*	
336					341					346					351	
ataaaaaatt	catttttcatt	tgttgggcag	aggcccaata	aatgaacaaa	tgtacataca											1296
ctcaggaagg	tagtacaaga	tactccatac	aacacaacca	tgtgctat	atcatggcat											1356
ttcttaaaag	ggtgagcaac	agaacaaaag	gcagaaaagg	catacctaag	gactaattta											1416
aacacatatc	aatgtgaagg	actaatttaa	attactatca	tttatgattg	cagtaataaa											1476
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catcctatat	ggccaataat	gagttattga	tctgactagt	tgtatgtctt	tctgttcaaa											1716
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cacagaattt	ccacagcaag	aatacactta	ttttaattaa	caatagcaca	gatatagcat											1836
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ctggatctga	ccatggttca	cacaaattat	gtcagggtgg	tgtagtgcg	gtaaatgtct											2016
gagtgattcg	agagtgattt	ttatcatcct	attccactgt	aggggcactt	gctcgagaaa											2076
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 Glu Glu Arg Asp Leu Thr Gln Glu Gln Thr Glu Lys Leu Leu Gln Phe
 5 10 15 20

cag gat ctg act ggc atc gaa tct atg gat cag tgt cgc cat acc ttg 151
 Gln Asp Leu Thr Gly Ile Glu Ser Met Asp Gln Cys Arg His Thr Leu
 21 26 31 36

gaa cag cat aac tgg aac ata gag gct gct gta cag gac aga ttg aat 199
 Glu Gln His Asn Trp Asn Ile Glu Ala Ala Val Gln Asp Arg Leu Asn
 37 42 47 52

gag caa gag ggc gta cct agt gtt ttc aac cca cct cca tca cga ccc 247
 Glu Gln Glu Gly Val Pro Ser Val Phe Asn Pro Pro Pro Ser Arg Pro
 53 58 63 68

ctg cag gtt aat aca gct gac cac agg atc tac agc tat gtt gtc tca 295
 Leu Gln Val Asn Thr Ala Asp His Arg Ile Tyr Ser Tyr Val Val Ser
 69 74 79 84

aga cct caa cca agg ggg ctg ctt gga tgg ggt tat tac ttg ata atg 343
 Arg Pro Gln Pro Arg Gly Leu Leu Gly Trp Gly Tyr Tyr Leu Ile Met
 85 90 95 100

ctt cca ttc cgg ttt acc tat tac acg ata ctt gat ata ttt agg ttt 391
 Leu Pro Phe Arg Phe Thr Tyr Tyr Thr Ile Leu Asp Ile Phe Arg Phe
 101 106 111 116

gct ctt cgt ttt ata cgg cct gac cct cgc agc cgg gtc act gac ccc 439
 Ala Leu Arg Phe Ile Arg Pro Asp Pro Arg Ser Arg Val Thr Asp Pro
 117 122 127 132

gtt ggg gac att gtt tca ttt atg cac tct ttt gaa gag aaa tat ggg 487
 Val Gly Asp Ile Val Ser Phe Met His Ser Phe Glu Glu Lys Tyr Gly
 133 138 143 148

agg gca cac cct gtc ttc tac cag gga acg tac agc cag gca ctt aac 535
 Arg Ala His Pro Val Phe Tyr Gln Gly Thr Tyr Ser Gln Ala Leu Asn
 149 154 159 164

gat gcc aaa agg gag ctt cgc ttt ctt ttg gtt tat ctt cat gga gat	583
Asp Ala Lys Arg Glu Leu Arg Phe Leu Leu Val Tyr Leu His Gly Asp	
165 170 175 180	
gat cac cag gac tct gat gag ttt tgt cgc aac aca ctc tgt gca cct	631
Asp His Gln Asp Ser Asp Glu Phe Cys Arg Asn Thr Leu Cys Ala Pro	
181 186 191 196	
gaa gtt att tca cta ata aac act agg atg ctc ttc tgg gca tgc tct	679
Glu Val Ile Ser Leu Ile Asn Thr Arg Met Leu Phe Trp Ala Cys Ser	
197 202 207 212	
aca aac aaa cct gag gga tac agg gtc tca cag gct tta cga gag aac	727
Thr Asn Lys Pro Glu Gly Tyr Arg Val Ser Gln Ala Leu Arg Glu Asn	
213 218 223 228	
acc tat cca ttc ctg gcc atg att atg ctg aag gat cga agg atg act	775
Thr Tyr Pro Phe Leu Ala Met Ile Met Leu Lys Asp Arg Arg Met Thr	
229 234 239 244	
gtg gtg gga cgg cta gaa ggc ctc att caa cct gat gac ctc att aac	823
Val Val Gly Arg Leu Glu Gly Leu Ile Gln Pro Asp Asp Leu Ile Asn	
245 250 255 260	
caa ctg aca ttt atc atg gat gct aac cag act tac ctg gtg tca gaa	871
Gln Leu Thr Phe Ile Met Asp Ala Asn Gln Thr Tyr Leu Val Ser Glu	
261 266 271 276	
cgc cta gaa agg gaa gaa aga aac cag acc caa gtg ctg aga caa cag	919
Arg Leu Glu Arg Glu Glu Arg Asn Gln Thr Gln Val Leu Arg Gln Gln	
277 282 287 292	
cag gat gag gcc tac ctg gcc tct ctc aga gct gac cag gag aaa gaa	967
Gln Asp Glu Ala Tyr Leu Ala Ser Leu Arg Ala Asp Gln Glu Lys Glu	
293 298 303 308	
aga aag aaa cgg gag gag cgg gag cgt aag cgg cgg aag gag gag gag	1015
Arg Lys Lys Arg Glu Glu Arg Glu Arg Lys Arg Arg Lys Glu Glu Glu	
309 314 319 324	
gtg caa cag caa aag ttg gca gag gag aga cgg cgg cag aat tta cag	1063
Val Gln Gln Gln Lys Leu Ala Glu Glu Arg Arg Arg Gln Asn Leu Gln	
325 330 335 340	
gag gaa aag gaa agg aag ttg gaa tgc ctg ccc cct gaa cct tcc cct	1111
Glu Glu Lys Glu Arg Lys Leu Glu Cys Leu Pro Pro Glu Pro Ser Pro	
341 346 351 356	
gat gac cct gaa agt gtc aag atc atc ttc aaa tta cct aat gat tct	1159
Asp Asp Pro Glu Ser Val Lys Ile Ile Phe Lys Leu Pro Asn Asp Ser	
357 362 367 372	
cga gta gag aga cga ttc cac ttt tca cag tct cta aca gta atc cac	1207
Arg Val Glu Arg Arg Phe His Phe Ser Gln Ser Leu Thr Val Ile His	
373 378 383 388	
gac ttc tta ttc tcc ttg aag gaa agc cca gaa aag ttt cag att gaa	1255

tcatgtgata atttactgaa gaaatctagt gtactttataa tttttttcat aaaagtttac 4462
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gagcaaaagt tgcacagcta aaccaggggc tcattcccag gacagac atg cag tta 176
Met Gln Leu
1
tgg att ccg aaa gac aag tca agg aca ctg atg aca ttg aaa gtc cta 224
Trp Ile Pro Lys Asp Lys Ser Arg Thr Leu Met Thr Leu Lys Val Leu
4 9 14 19
aac gca gta tcc gag aca gtg gct aca tcg act gct ggg att ccg agc 272
Asn Ala Val Ser Glu Thr Val Ala Thr Ser Thr Ala Gly Ile Pro Ser
20 25 30 35
gca gcg act ccc tct ctc ctc ctc gcc acg gca gag atg att cct tcg 320
Ala Ala Thr Pro Ser Leu Leu Leu Ala Thr Ala Glu Met Ile Pro Ser
36 41 46 51
aca gcc tgg att cct ttg gct ctc gct cgt cgg cag acg cct tca cca 368
Thr Ala Trp Ile Pro Leu Ala Leu Ala Arg Arg Gln Thr Pro Ser Pro
52 57 62 67
gat gta gtc ctc agg gga agc agc gat ggg aga gga agc gac tct gaa 416
Asp Val Val Leu Arg Gly Ser Ser Asp Gly Arg Gly Ser Asp Ser Glu
68 73 78 83
tcc gac ttg cct cat cgg aag ctg cca gat gtg aag aag gat gac atg 464
Ser Asp Leu Pro His Arg Lys Leu Pro Asp Val Lys Lys Asp Asp Met
84 89 94 99
tct gca cgg cgg act tcc cat ggt gag ccg aaa tca gca gtg cct ttt 512
Ser Ala Arg Arg Thr Ser His Gly Glu Pro Lys Ser Ala Val Pro Phe
100 105 110 115
aac cag tac ctc ccg aac aaa agc aat cag acg gcc tac gtc ccc gcg 560
Asn Gln Tyr Leu Pro Asn Lys Ser Asn Gln Thr Ala Tyr Val Pro Ala
116 121 126 131

cct ctg aga aag aag aaa gca gag aga gag gaa tac cgc aag agc tgg Pro Leu Arg Lys Lys Lys Ala Glu Arg Glu Glu Tyr Arg Lys Ser Trp 132 137 142 147	608
agt acc gcc acc tcc ccg ctg ggt ggg gag agg ccc ttc aga tac ggt Ser Thr Ala Thr Ser Pro Leu Gly Gly Glu Arg Pro Phe Arg Tyr Gly 148 153 158 163	656
ccg aga act cct gtg tct gat gac gca gag agc acc agc atg ttt gac Pro Arg Thr Pro Val Ser Asp Asp Ala Glu Ser Thr Ser Met Phe Asp 164 169 174 179	704
atg cgg tgt gag gag gag gcc gcg gtg cag ccg cac agc agg gcc cgc Met Arg Cys Glu Glu Glu Ala Ala Val Gln Pro His Ser Arg Ala Arg 180 185 190 195	752
cag gag cag ctg cag ctg ata aat aac cag ctg agg gaa gag gac gac Gln Glu Gln Leu Gln Leu Ile Asn Asn Gln Leu Arg Glu Glu Asp Asp 196 201 206 211	800
aaa tgg caa gat gac ctg gct cgt tgg aag agt cgt aga aga agt gtt Lys Trp Gln Asp Asp Leu Ala Arg Trp Lys Ser Arg Arg Arg Ser Val 212 217 222 227	848
tct cag gac tta atc aag aaa gag gaa gaa agg aaa aaa atg gag aag Ser Gln Asp Leu Ile Lys Lys Glu Glu Glu Arg Lys Lys Met Glu Lys 228 233 238 243	896
tta ctg gct gga gaa gat ggg aca agt gaa cga agg aaa agc atc aaa Leu Leu Ala Gly Glu Asp Gly Thr Ser Glu Arg Arg Lys Ser Ile Lys 244 249 254 259	944
acc tac aga gaa att gtt caa gaa aaa gag cgg aga gag aga gag ctg Thr Tyr Arg Glu Ile Val Gln Glu Lys Glu Arg Arg Glu Arg Glu Leu 260 265 270 275	992
cat gaa gca tat aag aac gct cgg tcc cag gag gag gca gag ggg atc His Glu Ala Tyr Lys Asn Ala Arg Ser Gln Glu Glu Ala Glu Gly Ile 276 281 286 291	1040
ctt caa cag tac att gag agg ttc acc atc agt gag gct gtt ctc gaa Leu Gln Gln Tyr Ile Glu Arg Phe Thr Ile Ser Glu Ala Val Leu Glu 292 297 302 307	1088
cgc ttg gag atg cca aaa att ctg gaa aga agc cat tca aca gag cca Arg Leu Glu Met Pro Lys Ile Leu Glu Arg Ser His Ser Thr Glu Pro 308 313 318 323	1136
aat tta tcc tcc ttc ctg aat gac ccc aat ccc atg aaa tac ctg cgg Asn Leu Ser Ser Phe Leu Asn Asp Pro Asn Pro Met Lys Tyr Leu Arg 324 329 334 339	1184
caa cag tca ctg cct cca ccc aaa ttc act gcc act gtt gaa acc acc Gln Gln Ser Leu Pro Pro Pro Lys Phe Thr Ala Thr Val Glu Thr Thr 340 345 350 355	1232

att gct cgt gcc agt gtt ctg gat acc agc atg tca gca ggc agt ggg Ile Ala Arg Ala Ser Val Leu Asp Thr Ser Met Ser Ala Gly Ser Gly 356 361 366 371	1280
tct cca agc aaa act gtc act ccc aaa gca gtg cct atg ctg aca ccc Ser Pro Ser Lys Thr Val Thr Pro Lys Ala Val Pro Met Leu Thr Pro 372 377 382 387	1328
aag cct tac tcc cag ccc aaa aat tct caa gat gtt ctg aag acc ttt Lys Pro Tyr Ser Gln Pro Lys Asn Ser Gln Asp Val Leu Lys Thr Phe 388 393 398 403	1376
aag gta gac ggg aaa gtc agt gtg aat gga gag acg gtt cat aga gag Lys Val Asp Gly Lys Val Ser Val Asn Gly Glu Thr Val His Arg Glu 404 409 414 419	1424
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cca aac tct gtt ccc caa gag ctc gca gca acc act gag aaa acg gaa Pro Asn Ser Val Pro Gln Glu Leu Ala Ala Thr Thr Glu Lys Thr Glu 468 473 478 483	1616
ccg aat agt caa gag gac aag aat gat ggt gga aaa tca aga aaa ggg Pro Asn Ser Gln Glu Asp Lys Asn Asp Gly Gly Lys Ser Arg Lys Gly 484 489 494 499	1664
aat ata gaa ctt gcc tca tca gaa cca cag cat ttt aca aca act gtg Asn Ile Glu Leu Ala Ser Ser Glu Pro Gln His Phe Thr Thr Thr Val 500 505 510 515	1712
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cag ctg aag aat gat gtg tcg gaa gaa aaa gac cag aag aaa cca gaa Gln Leu Lys Asn Asp Val Ser Glu Glu Lys Asp Gln Lys Lys Pro Glu 532 537 542 547	1808
aat gaa atg agt gga aag gtg gag ttg gtg ctg tca caa aag gtg gta Asn Glu Met Ser Gly Lys Val Glu Leu Val Leu Ser Gln Lys Val Val 548 553 558 563	1856
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gac aaa atg cct gaa gcc aac caa cta cat ttg cca aat ctc aat tct	1952

Asp Lys Met Pro Glu Ala Asn Gln Leu His Leu Pro Asn Leu Asn Ser	
580 585 590 595	
caa gtg gat tct cca agc agt gag aag tca cct gtt acg aca cct ttt	2000
Gln Val Asp Ser Pro Ser Ser Glu Lys Ser Pro Val Thr Thr Pro Phe	
596 601 606 611	
aag ttc tgg gca tgg gac cca gaa gag gag cgc agg cga cag gaa aaa	2048
Lys Phe Trp Ala Trp Asp Pro Glu Glu Glu Arg Arg Arg Gln Glu Lys	
612 617 622 627	
tgg caa cag gaa cag gaa cgt ttg ctc cag gag aga tac cag aag gag	2096
Trp Gln Gln Glu Gln Arg Leu Leu Gln Glu Arg Tyr Gln Lys Glu	
628 633 638 643	
cag gac aag ctg aaa gaa gag tgg gaa aag gcc caa aag gag gtg gaa	2144
Gln Asp Lys Leu Lys Glu Glu Trp Glu Lys Ala Gln Lys Glu Val Glu	
644 649 654 659	
gag gaa gaa cgc aga tac tat gag gag gag cgt aag ata att gaa gac	2192
Glu Glu Glu Arg Arg Tyr Tyr Glu Glu Glu Arg Lys Ile Ile Glu Asp	
660 665 670 675	
act gtg gtt cca ttt act gtt tct tca agt tcc gct gac cag ctg tct	2240
Thr Val Val Pro Phe Thr Val Ser Ser Ser Ser Ala Asp Gln Leu Ser	
676 681 686 691	
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ctg gga aac tgt caa gat gaa aaa caa gac aga aga tgg aag aaa tca	2336
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Phe Gln Gly Asp Asp Ser Asp Leu Leu Leu Lys Thr Arg Glu Ser Asp	
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Arg Leu Glu Glu Lys Gly Ser Leu Thr Glu Gly Ala Leu Ala His Ser	
740 745 750 755	
ggg aac cct gta tca aaa gga gtc cat gaa gac cat cag ctg gat acc	2480
Gly Asn Pro Val Ser Lys Gly Val His Glu Asp His Gln Leu Asp Thr	
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gag gct ggg gcc cca cac tgt gga aca aac cca cag ctt gct cag gat	2528
Glu Ala Gly Ala Pro His Cys Gly Thr Asn Pro Gln Leu Ala Gln Asp	
772 777 782 787	
cca tcc cag aat cag cag aca tca aat cca acg cac agt tca gaa gat	2576
Pro Ser Gln Asn Gln Gln Thr Ser Asn Pro Thr His Ser Ser Glu Asp	
788 793 798 803	
gtg aag cca aaa acc ctc ccg ctg gat aaa agc att aac cat cag atc	2624
Val Lys Pro Lys Thr Leu Pro Leu Asp Lys Ser Ile Asn His Gln Ile	

804	809	814	819	
gag tct ccc agt gaa agg cgg aag tct ata agt gga aag aag ctg tgc				2672
Glu Ser Pro Ser Glu Arg Arg Lys Ser Ile Ser Gly Lys Lys Leu Cys				
820	825	830	835	
tct tcc tgt ggg ctt cct ttg ggt aaa gga gct gca atg atc atc gag				2720
Ser Ser Cys Gly Leu Pro Leu Gly Lys Gly Ala Ala Met Ile Ile Glu				
836	841	846	851	
acc ctc aat ctc tat ttt cac atc cag tgt ttc agg tgt gga att tgt				2768
Thr Leu Asn Leu Tyr Phe His Ile Gln Cys Phe Arg Cys Gly Ile Cys				
852	857	862	867	
aaa ggc cag ctt gga gat gca gtg agt ggg acg gat gtt agg att cga				2816
Lys Gly Gln Leu Gly Asp Ala Val Ser Gly Thr Asp Val Arg Ile Arg				
868	873	878	883	
aat ggt ctc ctg aac tgt aat gat tgc tac atg cga tcc aga agt gcc				2864
Asn Gly Leu Leu Asn Cys Asn Asp Cys Tyr Met Arg Ser Arg Ser Ala				
884	889	894	899	
ggg cag cct aca aca ttg tga ca cggctttcaa gcttcggat cactcaccat				2917
Gly Gln Pro Thr Thr Leu *				
900	905			
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caccatttac ctaattttctg aaaggctctt ctgaaagggtg gtatctgttc tttcgtagca				3037
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atatgtgagt ccggtccaaaa gatgttactg ctctgggtgg gccagtgttc tatatcggtt 5617
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 Met Ser Ser Asp Leu Val
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 Ser Arg Leu Pro Thr Ile Tyr Arg Asn Ala His Asp Ile Lys Asn Lys
 7 12 17 22
 agc tct gcc ccc agc aga gtg cct cct ctt ttt gtc cca cag ggg act 449
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 23 28 33 38
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 Ser Glu Arg Lys Asp Ser Ser Gly Ser Val Ser Pro Asn Thr Leu Ser
 39 44 49 54
 cag gag gag ggt gat cag atc tgt ttg tac cat atc cgg aaa agt tgt 545
 Gln Glu Glu Gly Asp Gln Ile Cys Leu Tyr His Ile Arg Lys Ser Cys
 55 60 65 70
 agc ttt caa gat aag tgc cat aga gtt cat ttc cat ttg ccg tat cga 593
 Ser Phe Gln Asp Lys Cys His Arg Val His Phe His Leu Pro Tyr Arg
 71 76 81 86
 /
 tgg caa ttc ttg gat aga ggc aaa tgg gag gat ttg gac aac atg gaa 641
 Trp Gln Phe Leu Asp Arg Gly Lys Trp Glu Asp Leu Asp Asn Met Glu

87	92	97	102	
ctt att gaa gag gca tat tgc aat ccc aaa ata gaa agg atc ctg tgc				689
Leu Ile Glu Glu Ala Tyr Cys Asn Pro Lys Ile Glu Arg Ile Leu Cys				
103	108	113	118	
tct gag tca gcc agt acc ttt cac tct cat tgt ctg aac ttt aac gcc				737
Ser Glu Ser Ala Ser Thr Phe His Ser His Cys Leu Asn Phe Asn Ala				
119	124	129	134	
atg act tac ggt gct acc cag gct cgc cgc ctc tcc acg gcc tcc tct				785
Met Thr Tyr Gly Ala Thr Gln Ala Arg Arg Leu Ser Thr Ala Ser Ser				
135	140	145	150	
gtc acc aaa cct cca cac ttc atc ctc acc act gac tgg att tgg tac				833
Val Thr Lys Pro Pro His Phe Ile Leu Thr Thr Asp Trp Ile Trp Tyr				
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tgg agt gat gag ttt ggt tct tgg cag gaa tat gga aga cag ggc acg				881
Trp Ser Asp Glu Phe Gly Ser Trp Gln Glu Tyr Gly Arg Gln Gly Thr				
167	172	177	182	
gtg cac cct gtg acc act gtc agc agt agc gac gtg gag aag gcc tac				929
Val His Pro Val Thr Thr Val Ser Ser Ser Asp Val Glu Lys Ala Tyr				
183	188	193	198	
ctg gcc tac tgt aca ccg ggg tct gac ggc cag gca gcc acc ttg aag				977
Leu Ala Tyr Cys Thr Pro Gly Ser Asp Gly Gln Ala Ala Thr Leu Lys				
199	204	209	214	
ttc cag gcc gga aag cac aac tac gag tta gat ttc aaa gcc ttc gtt				1025
Phe Gln Ala Gly Lys His Asn Tyr Glu Leu Asp Phe Lys Ala Phe Val				
215	220	225	230	
cag aaa aac ctg gtc tat ggc aca act aaa aag gtt tgc cgc aga ccc				1073
Gln Lys Asn Leu Val Tyr Gly Thr Thr Lys Lys Val Cys Arg Arg Pro				
231	236	241	246	
aaa tac gtg tct ccc cag gat gtg acg acc atg caa acc tgc aat acc				1121
Lys Tyr Val Ser Pro Gln Asp Val Thr Thr Met Gln Thr Cys Asn Thr				
247	252	257	262	
aag ttt cca ggc ccg aag agc atc cca gac tat tgg gac tcc tct gcc				1169
Lys Phe Pro Gly Pro Lys Ser Ile Pro Asp Tyr Trp Asp Ser Ser Ala				
263	268	273	278	
ctg cca gac cca ggc ttt cag aag atc acc ctt agt tct tcc tcg gaa				1217
Leu Pro Asp Pro Gly Phe Gln Lys Ile Thr Leu Ser Ser Ser Ser Glu				
279	284	289	294	
gag tat cag aag gtc tgg aac ctc ttt aac cgc acg ctg cct ttc tac				1265
Glu Tyr Gln Lys Val Trp Asn Leu Phe Asn Arg Thr Leu Pro Phe Tyr				
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Phe Val Gln Lys Ile Glu Arg Val Gln Asn Leu Ala Leu Trp Glu Val				
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tac cag tgg caa aaa gga cag atg cag aag cag aac gga ggg aag gcc	1361
Tyr Gln Trp Gln Lys Gly Gln Met Gln Lys Gln Asn Gly Gly Lys Ala	
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gtg gac gag cgg cag ctg ttc cac ggc acc agc gcc att ttt gtg gac	1409
Val Asp Glu Arg Gln Leu Phe His Gly Thr Ser Ala Ile Phe Val Asp	
343 348 353 358	
gcc atc tgc cag cag aac ttt gac tgg cgg gtc tgt ggt gtt cat ggc	1457
Ala Ile Cys Gln Gln Asn Phe Asp Trp Arg Val Cys Gly Val His Gly	
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Thr Ser Tyr Gly Lys Gly Ser Tyr Phe Ala Arg Asp Ala Ala Tyr Ser	
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cac cac tac agc aaa tcc gac acg cag acc cac acg atg ttc ctg gcc	1553
His His Tyr Ser Lys Ser Asp Thr Gln Thr His Thr Met Phe Leu Ala	
391 396 401 406	
cgg gtg ctg gtg ggc gag ttc gtc agg ggc aat gcc tcc ttt gtc cgt	1601
Arg Val Leu Val Gly Glu Phe Val Arg Gly Asn Ala Ser Phe Val Arg	
407 412 417 422	
ccg ccg gcc aag gag ggc tgg agc aac gcc ttc tat gat agc tgc gtg	1649
Pro Pro Ala Lys Glu Gly Trp Ser Asn Ala Phe Tyr Asp Ser Cys Val	
423 428 433 438	
aac agt gtg tcc gac ccc tcc atc ttt gtg atc ttt gag aaa cac cag	1697
Asn Ser Val Ser Asp Pro Ser Ile Phe Val Ile Phe Glu Lys His Gln	
439 444 449 454	
gtc tac cca gag tat gtc atc cag tac acc acc tcc tcc aag ccc tgc	1745
Val Tyr Pro Glu Tyr Val Ile Gln Tyr Thr Thr Ser Ser Lys Pro Ser	
455 460 465 470	
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Val Thr Pro Ser Ile Leu Leu Ala Leu Gly Ser Leu Phe Ser Ser Arg	
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Gln *	
487	
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 Met Val Tyr
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 Arg Asp Asp Tyr Phe Ile Arg His Ser Ile Ser Val Ser Ala Val Ile
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 Val Arg Ala Trp Ile Thr His Lys Tyr Ser Gly Arg Asp Trp Asn Val
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 Lys Trp Glu Glu Asn Leu Leu His Ala Val Ala Lys Asn Tyr Thr Leu
 36 41 46 51

ctg cag acc atc ccg cct ttt gaa cgc cct ttc aaa gat cat caa gtg 546
 Leu Gln Thr Ile Pro Pro Phe Glu Arg Pro Phe Lys Asp His Gln Val
 52 57 62 67

tgc ctt gag tgg aac atg ggt tat att tgg aac ctt cgg gca aac agg	594
Cys Leu Glu Trp Asn Met Gly Tyr Ile Trp Asn Leu Arg Ala Asn Arg	
68 73 78 83	
att cca cag tgt cct ctg gaa aat gat gtg gtt gcc ctg ctt ggc ttt	642
Ile Pro Gln Cys Pro Leu Glu Asn Asp Val Val Ala Leu Leu Gly Phe	
84 89 94 99	
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Pro Tyr Ala Ser Ser Gly Glu Asn Thr Gly Ile Val Lys Lys Phe Pro	
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Arg Phe Arg Asn Arg Glu Leu Glu Ala Thr Arg Arg Gln Arg Met Asp	
116 121 126 131	
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Tyr Pro Val Phe Thr Val Ser Leu Trp Leu Tyr Leu Leu His Tyr Cys	
132 137 142 147	
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Lys Ala Asn Leu Cys Gly Ile Leu Tyr Phe Val Asp Ser Asn Glu Met	
148 153 158 163	
tac ggc aca cct tct gta ttt ctt acg gaa gag ggc tat ttg cat att	882
Tyr Gly Thr Pro Ser Val Phe Leu Thr Glu Glu Gly Tyr Leu His Ile	
164 169 174 179	
cag atg cat ctt gtc aaa ggg gaa gac ctt gct gta aaa act aaa ttc	930
Gln Met His Leu Val Lys Gly Glu Asp Leu Ala Val Lys Thr Lys Phe	
180 185 190 195	
atc ata cct ttg aag gag tgg ttt cga ctg gat atc tct ttt aac gga	978
Ile Ile Pro Leu Lys Glu Trp Phe Arg Leu Asp Ile Ser Phe Asn Gly	
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Gly Gln Ile Val Val Thr Thr Ser Ile Gly Gln Asp Leu Lys Ser Tyr	
212 217 222 227	
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His Asn Gln Thr Ile Ser Phe Arg Glu Asp Phe His Tyr Asn Asp Thr	
228 233 238 243	
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Ala Gly Tyr Phe Ile Ile Gly Gly Ser Arg Tyr Val Ala Gly Ile Glu	
244 249 254 259	
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Gly Phe Phe Gly Pro Leu Lys Tyr Tyr Arg Leu Arg Ser Leu His Ser	
260 265 270 275	
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Ala Leu Ile Phe Asn Pro Leu Leu Glu Lys Gln Leu Ala Glu Gln Ile	
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Lys	Leu	Tyr	Tyr	Glu	Arg	Cys	Ala	Glu	Val	Gln	Glu	Ile	Val	Ser	Val		
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Tyr	Ala	Ser	Ala	Ala	Lys	His	Gly	Gly	Glu	Arg	Gln	Glu	Ala	Cys	His		
308					313					318					323		
ctc	cac	aac	tcc	tac	ctg	gac	ctc	cag	cgc	agg	tat	ggg	aga	ccc	tcg		1362
Leu	His	Asn	Ser	Tyr	Leu	Asp	Leu	Gln	Arg	Arg	Tyr	Gly	Arg	Pro	Ser		
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Met	Cys	Arg	Ala	Phe	Pro	Trp	Glu	Lys	Glu	Leu	Lys	Asp	Lys	His	Pro		
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Ser	Leu	Phe	Gln	Ala	Leu	Leu	Glu	Met	Asp	Leu	Leu	Thr	Val	Pro	Arg		
356					361					366					371		
aac	caa	aat	gaa	tct	gta	tca	gaa	atc	ggt	ggg	aag	ata	ttt	gag	aag		1506
Asn	Gln	Asn	Glu	Ser	Val	Ser	Glu	Ile	Gly	Gly	Lys	Ile	Phe	Glu	Lys		
372					377					382					387		
gct	gta	aag	aga	ctc	tct	agc	att	gat	ggt	ctt	cac	caa	att	agc	tct		1554
Ala	Val	Lys	Arg	Leu	Ser	Ser	Ile	Asp	Gly	Leu	His	Gln	Ile	Ser	Ser		
388					393					398					403		
atc	gtc	ccc	ttt	ctg	acg	gat	tcc	agc	tgc	tgt	gga	tac	cat	aaa	gca		1602
Ile	Val	Pro	Phe	Leu	Thr	Asp	Ser	Ser	Cys	Cys	Gly	Tyr	His	Lys	Ala		
404					409					414					419		
tcc	tac	tac	ctt	gca	gtc	ttt	tat	gag	act	gga	tta	aat	gtt	cct	cgg		1650
Ser	Tyr	Tyr	Leu	Ala	Val	Phe	Tyr	Glu	Thr	Gly	Leu	Asn	Val	Pro	Arg		
420					425					430					435		
gat	cag	ctg	cag	ggc	atg	ttg	tat	agt	ttg	gtt	gga	ggc	cag	ggg	agt		1698
Asp	Gln	Leu	Gln	Gly	Met	Leu	Tyr	Ser	Leu	Val	Gly	Gly	Gln	Gly	Ser		
436					441					446					451		
gag	agg	ctg	tct	tca	atg	aat	ctt	ggg	tat	aaa	cac	tac	cag	ggt	att		1746
Glu	Arg	Leu	Ser	Ser	Met	Asn	Leu	Gly	Tyr	Lys	His	Tyr	Gln	Gly	Ile		
452					457					462					467		
gac	aac	tac	ccc	ctg	gac	tgg	gaa	ctg	tcg	tat	gcc	tac	tac	agc	aac		1794
Asp	Asn	Tyr	Pro	Leu	Asp	Trp	Glu	Leu	Ser	Tyr	Ala	Tyr	Tyr	Ser	Asn		
468					473					478					483		
att	gcc	acc	aag	aca	ccc	ctt	gac	cag	cac	aca	ctg	caa	gga	gat	cag		1842
Ile	Ala	Thr	Lys	Thr	Pro	Leu	Asp	Gln	His	Thr	Leu	Gln	Gly	Asp	Gln		
484					489					494					499		
gca	tat	gtt	gaa	aca	att	aga	cta	aaa	gat	gat	gaa	ata	ctc	aag	gta		1890
Ala	Tyr	Val	Glu	Thr	Ile	Arg	Leu	Lys	Asp	Asp	Glu	Ile	Leu	Lys	Val		
500					505					510					515		
caa	acc	aaa	gaa	gat	gga	gat	gtc	ttt	atg	tgg	ttg	aag	cat	gaa	gct		1938
Gln	Thr	Lys	Glu	Asp	Gly	Asp	Val	Phe	Met	Trp	Leu	Lys	His	Glu	Ala		

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Thr Arg Gly Asn Ala	Ala Ala Gln Gln Arg	Leu Ala Gln Met Leu	Phe	
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tgg ggg cag caa ggt	gtg gcc aag aat ccc	gaa gca gca att gag	tgg	2034
Trp Gly Gln Gln Gly	Val Ala Lys Asn Pro	Glu Ala Ala Ile Glu	Trp	
548	553	558	563	
tac gcc aag ggc gcc	ctg gag acg gag gat	cct gcg tta atc tat	gac	2082
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Tyr Ala Ile Val Leu	Phe Lys Gly Gln Gly	Val Lys Lys Asn Arg	Arg	
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Ala Val Asn Gly Leu	Gly Trp Tyr Tyr His	Lys Phe Lys Lys Asn	Tyr	
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Ala Lys Ala Ala Lys	Tyr Trp Leu Lys Ala	Glu Glu Met Gly Asn	Pro	
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Asp Ala Ser Tyr Asn	Leu Gly Val Leu His	Leu Asp Gly Ile Phe	Pro	
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tat atc aca ggc aac	ctg gag aca ttc cct	aga gat cct gag aaa	gct	2466
Tyr Ile Thr Gly Asn	Leu Glu Thr Phe Pro	Arg Asp Pro Glu Lys	Ala	
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Val Val Trp Ala Lys	His Val Ala Glu Lys	Asn Gly Tyr Leu Gly	His	
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Val Ile Arg Lys Gly	Leu Asn Ala Tyr Leu	Glu Gly Ser Trp His	Glu	
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Ala Leu Leu Tyr Tyr	Val Leu Ala Ala Glu	Thr Gly Ile Glu Val	Ser	
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Arg Tyr Leu Gly Val Asn Cys Val Trp Arg Tyr Tyr Asn Phe Ser Val	
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Phe Gln Ile Asp Ala Pro Ser Phe Ala Tyr Leu Lys Met Gly Asp Leu	
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Tyr Tyr Tyr Gly His Gln Asn Gln Ser Gln Asp Leu Glu Leu Ser Val	
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Ser Phe Ser Pro Cys Ser Leu Ala Trp Leu Tyr Leu His Leu Arg Leu	
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Ser Asp Gln Asp Gln Pro Thr Val Thr Asn Asn Pro Glu Pro Arg Gly	
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Pro Leu Pro Asp Gln Gln Pro Cys Ile Glu Pro Pro Pro Ser Ser Leu		
21 26 31 36		
ctc tac cag cca aat ttc aac act aac ttt gaa gac aga aat gca ttt		437
Leu Tyr Gln Pro Asn Phe Asn Thr Asn Phe Glu Asp Arg Asn Ala Phe		
37 42 47 52		
gtt act ggc atc gca aga tac att gaa caa gcc acc gtc cac tct agc		485
Val Thr Gly Ile Ala Arg Tyr Ile Glu Gln Ala Thr Val His Ser Ser		
53 58 63 68		
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Met Asn Glu Met Leu Glu Glu Gly Gln Glu Tyr Ala Val Met Leu Tyr		
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Thr Trp Arg Ser Cys Ser Arg Ala Ile Pro Gln Val Lys Cys Asn Glu		
85 90 95 100		
cag cct aac aga gtg gaa atc tac gag aaa acc gtg gag gtt ctg gag		629
Gln Pro Asn Arg Val Glu Ile Tyr Glu Lys Thr Val Glu Val Leu Glu		
101 106 111 116		
cct gag gtc aca aaa ctg atg aat ttc atg tac ttc cag aga aat gcc		677
Pro Glu Val Thr Lys Leu Met Asn Phe Met Tyr Phe Gln Arg Asn Ala		
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Ile Glu Arg Phe Cys Gly Glu Val Arg Arg Leu Cys His Ala Glu Arg		
133 138 143 148		
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Arg Lys Asp Phe Val Ser Glu Ala Tyr Leu Ile Thr Leu Gly Lys Phe		
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Lys Met Ala Asp Pro Gln Ser Ile Gln Glu Ser Gln Asn Leu Ser Met		
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Phe Leu Ala Asn His Asn Lys Ile Thr Gln Ser Leu Gln Gln Gln Leu
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229 234 239 244

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Cys Val Asp Tyr Tyr Glu Asn Arg Met Tyr Leu Thr Pro Ser Glu Lys
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261 266 271 276

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Ser Val Ser Asn Ile Tyr Lys Leu Asp Ala Lys Lys Arg Ile Asn Leu
277 282 287 292

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Gly Asp Met Gln Ile Glu Leu Ala Arg Tyr Ile Lys Thr Ser Ala His
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Tyr Glu Glu Asn Lys Ser Arg Trp Thr Cys Thr Ser Ser Gly Ser Ser
325 330 335 340

cct cag tac aac atc tgc gag cag atg atc cag atc cgc gag gac cac 1349
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341 346 351 356

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Met Arg Phe Ile Ser Glu Leu Ala Arg Tyr Ser Asn Ser Glu Val Val
357 362 367 372

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Thr Gly Ser Gly Arg Gln Glu Ala Gln Lys Thr Asp Ala Glu Tyr Arg
373 378 383 388

aag ctc ttc gac ctg gcg ctg cag ggc ctg cag ctg ttg tcg cag tgg 1493
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389 394 399 404

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Ser Ala His Val Met Glu Val Tyr Ser Trp Lys Leu Val His Pro Thr
405 410 415 420

gac aag tac tcc aac aag gac tgc ccc gac agc gct gaa gag tac gag 1589
Asp Lys Tyr Ser Asn Lys Asp Cys Pro Asp Ser Ala Glu Glu Tyr Glu
421 426 431 436

cgt gcc acg cgc tac aac tac acc agc gag gag aag ttt gcc cta gtg 1637
Arg Ala Thr Arg Tyr Asn Tyr Thr Ser Glu Glu Lys Phe Ala Leu Val

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Glu Val Ile Ala Met Ile Lys Gly Leu Gln Val Leu Met Gly Arg Met				
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Glu Ser Val Phe Asn His Ala Ile Arg His Thr Val Tyr Ala Ala Leu				
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cag gac ttc tcc cag gtg acc ctt agg gag ccg ctg cgg cag gcc atc				1781
Gln Asp Phe Ser Gln Val Thr Leu Arg Glu Pro Leu Arg Gln Ala Ile				
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Lys Lys Lys Lys Asn Val Ile Gln Ser Val Leu Gln Ala Ile Arg Lys				
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Thr Val Cys Asp Trp Glu Thr Gly His Glu Pro Phe Asn Asp Pro Ala				
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Leu Arg Gly Glu Lys Asp Pro Lys Ser Gly Phe Asp Ile Lys Val Pro				
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Met Leu Glu Ser Leu Ile Ala Asp Lys Ser Gly Ser Lys Lys Thr Leu				
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Arg Ser Ser Leu Glu Gly Pro Thr Ile Leu Asp Ile Glu Lys Phe His				
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Arg Glu Ser Phe Phe Tyr Thr His Leu Ile Asn Phe Ser Glu Thr Leu				
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Gln Gln Cys Cys Asp Leu Ser Gln Leu Trp Phe Arg Glu Phe Phe Leu				
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Glu Leu Thr Met Gly Arg Arg Ile Gln Phe Pro Ile Glu Met Ser Met				
629	634	639	644	
ccc tgg atc ctg acg gac cac atc ctg gag acc aag gag gca tcg atg				2261
Pro Trp Ile Leu Thr Asp His Ile Leu Glu Thr Lys Glu Ala Ser Met				
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 Lys Phe Pro Glu Val Pro Glu Val Val Val Ser Arg Cys Met Leu Gln
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Leu His Ile His Gly Val Pro Pro Pro Val Leu Asn Ser Pro Gln Gly	
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Asn Ser Ile Tyr Ile Arg Pro Tyr Ile Thr Thr Pro Gly Gly Thr Thr	
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Arg Gln Thr Gln Gln His Ser Gly Trp Val Ser Gln Phe Asn Pro Met	
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Cys Pro Ala Ser Asn Pro Leu Ser His Thr Ser Ser Gln Gln Pro Asn	
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Gln Gln Gly His Gln Thr Ser His Val Tyr Met Pro Ile Ser Ser Pro	
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Pro Arg Val Val Val Thr Gln Pro Asn Thr Lys Tyr Thr Phe Lys Ile	
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Thr Val Ser Pro Asn Lys Pro Pro Ala Val Ser Pro Gly Val Val Ser	
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Pro Thr Phe Glu Leu Thr Asn Leu Leu Asn His Pro Asp His Tyr Val	
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Glu Thr Glu Asn Ile Gln His Leu Thr Asp Pro Thr Leu Ala His Val	
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Asp Arg Ile Ser Glu Thr Arg Lys Leu Ser Met Gly Ser Asp Asp Ala	
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Ala Tyr Thr Gln Ala Leu Leu Val His Gln Lys Ala Arg Met Glu Arg	
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Leu Gln Arg Glu Leu Glu Ile Gln Lys Lys Lys Leu Asp Lys Leu Lys	
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Ser Glu Val Asn Glu Met Glu Asn Asn Leu Thr Arg Arg Arg Leu Lys	
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Ala Ile His Asn Phe Tyr Asp Asn Ile Gly Phe Val Gly Pro Val Pro	
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Pro Lys Pro Lys Asp Gln Arg Ser Ile Ile Lys Thr Pro Lys Thr Gln	
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gcaacaacag aacagcaata tattctttct tgcagaccga acagaaatgc tgtctgagag 300
caagaatata ttggatgaac tgaaaaaaga ataccaagaa atagaaaact tagacaagac 360
caaatcaag aaatagtcaa cctgatttca cataaca atg tgt ggc att tgt tgt 415

Met Cys Gly Ile Cys Cys

1

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Ser Val Asn Phe Ser Ala Glu His Phe Ser Gln Asp Leu Lys Glu Asp	
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Leu Leu Tyr Asn Leu Lys Gln Arg Gly Pro Asn Ser Ser Lys Gln Leu	
23 28 33 38	
tta aag tct gat gtt aac tac cag tgt tta ttt tct gct cac gtc cta	559
Leu Lys Ser Asp Val Asn Tyr Gln Cys Leu Phe Ser Ala His Val Leu	
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His Leu Arg Gly Val Leu Thr Thr Gln Pro Val Glu Asp Glu Arg Gly	
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Asn Val Phe Leu Trp Asn Gly Glu Ile Phe Ser Gly Ile Lys Val Glu	
71 76 81 86	
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87 92 97 102	
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Asn Glu Ala Lys Leu Tyr Leu Glu Lys Pro Val Val Pro Leu Asn Met				
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Met Leu Pro Gln Ala Ala Leu Glu Thr His Cys Ser Asn Ile Ser Asn				
247	252	257	262	
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Val Pro Pro Thr Arg Glu Ile Leu Gln Val Phe Leu Thr Asp Val His				
263	268	273	278	
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Met Lys Glu Val Ile Gln Gln Phe Ile Asp Val Leu Ser Val Ala Val				
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Ile Pro Leu Asp Glu Pro Ile Asp Leu Leu Asn Val Ala Phe Ile Ala				
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Glu Glu Lys Thr Met Pro Thr Thr Phe Asn Arg Glu Gly Asn Lys Gln				
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Lys Asn Lys Cys Glu Ile Pro Ser Glu Glu Phe Ser Lys Asp Val Ala				
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Ala Ala Ala Ala Asp Ser Pro Asn Lys His Val Ser Val Pro Asp Arg				
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407	412	417	422	
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Arg Ile Trp Asn Phe Val Glu Ile Asn Val Ser Met Glu Glu Leu Gln				
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aaa tta aga aga act cga ata tgt cac tta att cgg cca ttg gat aca				1759
Lys Leu Arg Arg Thr Arg Ile Cys His Leu Ile Arg Pro Leu Asp Thr				
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Glu	His	Gly	Ser	Gln	Pro	Glu	Leu	Ser	Tyr	Leu	Met	Ala	Ser	Gly	Ser	
327					332					337					342	
aac	aat	gca	gtc	att	tac	gtg	cac	aac	ctg	aag	act	gtc	ata	gag	agc	1528
Asn	Asn	Ala	Val	Ile	Tyr	Val	His	Asn	Leu	Lys	Thr	Val	Ile	Glu	Ser	
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agc	cct	gag	tct	cca	gtg	acc	att	aca	gag	ccc	tac	cgg	acc	ctc	tca	1576
Ser	Pro	Glu	Ser	Pro	Val	Thr	Ile	Thr	Glu	Pro	Tyr	Arg	Thr	Leu	Ser	
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Gly	His	Thr	Ala	Lys	Ile	Thr	Ser	Val	Ala	Trp	Ser	Pro	His	His	Asp	
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Gly	Arg	Leu	Val	Ser	Ala	Ser	Tyr	Asp	Gly	Thr	Ala	Gln	Val	Trp	Asp	
391					396					401					406	
gct	ctc	cgg	gaa	gag	ccc	ctg	tgc	aat	ttc	cga	gga	cat	caa	ggc	cga	1720
Ala	Leu	Arg	Glu	Glu	Pro	Leu	Cys	Asn	Phe	Arg	Gly	His	Gln	Gly	Arg	
407					412					417					422	
ctg	ctt	tgt	gtg	gca	tgg	tct	cct	ttg	gat	cca	gac	tgc	atc	tat	tca	1768
Leu	Leu	Cys	Val	Ala	Trp	Ser	Pro	Leu	Asp	Pro	Asp	Cys	Ile	Tyr	Ser	
423					428					433					438	
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Gly	Ala	Asp	Asp	Phe	Cys	Val	His	Lys	Trp	Leu	Thr	Ser	Met	Gln	Asp	
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His	Ser	Arg	Pro	Pro	Gln	Gly	Lys	Lys	Ser	Ile	Glu	Leu	Glu	Lys	Lys	
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Ser	Met	Lys	Glu	Asn	Ser	Gly	Pro	Val	Glu	Asn	Gly	Val	Ser	Asp	Gln	
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Glu	Gly	Glu	Glu	Gln	Ala	Arg	Glu	Pro	Glu	Leu	Pro	Cys	Gly	Leu	Ala	
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Pro	Ala	Val	Ser	Arg	Glu	Pro	Val	Ile	Cys	Thr	Pro	Val	Ser	Ser	Gly	

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Phe Glu Lys Ser Lys Val Thr Ile Asn Asn Lys Val Ile Leu Leu Lys				
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Lys Glu Pro Pro Lys Glu Lys Pro Glu Thr Leu Ile Lys Lys Arg Lys				
567	572	577	582	
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Ala Arg Ser Leu Leu Pro Leu Ser Thr Ser Leu Asp His Arg Ser Lys				
583	588	593	598	
gag gag ctt cat cag gac tgt ttg gta cta gca act gca aag cac tcc				2296
Glu Glu Leu His Gln Asp Cys Leu Val Leu Ala Thr Ala Lys His Ser				
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aga gag ctg aat gaa gat gtg tct gct gat gtt gag gaa aga ttt cat				2344
Arg Glu Leu Asn Glu Asp Val Ser Ala Asp Val Glu Glu Arg Phe His				
615	620	625	630	
ctg ggg ctt ttc aca gac agg gct acc ctg tat aga atg att gat att				2392
Leu Gly Leu Phe Thr Asp Arg Ala Thr Leu Tyr Arg Met Ile Asp Ile				
631	636	641	646	
gaa gga aaa ggt cac tta gaa aat ggc cac cct gag tta ttt cac cag				2440
Glu Gly Lys Gly His Leu Glu Asn Gly His Pro Glu Leu Phe His Gln				
647	652	657	662	
ctt atg ctt tgg aaa ggg gat ctc aaa ggt gtt ctc cag act gca gca				2488
Leu Met Leu Trp Lys Gly Asp Leu Lys Gly Val Leu Gln Thr Ala Ala				
663	668	673	678	
gaa aga ggg gag ctg aca gac aac ctt gtg gct atg gca cca gca gct				2536
Glu Arg Gly Glu Leu Thr Asp Asn Leu Val Ala Met Ala Pro Ala Ala				
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Gly Tyr His Val Trp Leu Trp Ala Val Glu Ala Phe Ala Lys Gln Leu				
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Cys Phe Gln Asp Gln Tyr Val Lys Ala Ala Ser His Leu Leu Ser Ile				
711	716	721	726	
cac aaa gtg tat gaa gcg gtg gag ctg ctc aag tca aac cat ttt tac				2680
His Lys Val Tyr Glu Ala Val Glu Leu Leu Lys Ser Asn His Phe Tyr				
727	732	737	742	
agg gaa gct att gcg att gcc aag gcc cgg ctg cgc ccg gag gac cca				2728
Arg Glu Ala Ile Ala Ile Ala Lys Ala Arg Leu Arg Pro Glu Asp Pro				
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gtc ctg aag gac ttg tac ctc agc tgg gga acc gtc cta gaa aga gat				2776
Val Leu Lys Asp Leu Tyr Leu Ser Trp Gly Thr Val Leu Glu Arg Asp				
759	764	769	774	

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Gly His Tyr Ala Val Ala Ala Lys Cys Tyr Leu Gly Ala Thr Cys Ala	
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Tyr Asp Ala Ala Lys Val Leu Ala Lys Lys Gly Asp Ala Ala Ser Leu	
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Arg Thr Ala Ala Glu Leu Ala Ala Ile Val Gly Glu Asp Glu Leu Ser	
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Asn Thr Gly Thr Glu Gly Pro Phe Val Glu Arg Val Thr Ala Val Trp	
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Lys Ser Ile Phe Ser Leu Asp Thr Pro Glu Gln Tyr Gln Glu Ala Phe	
903 908 913 918	
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Gln Lys Leu Gln Asn Ile Lys Tyr Pro Ser Ala Thr Asn Asn Thr Pro	
919 924 929 934	
gcc aaa cag ctc ctg ctt cac att tgc cat gac ttg acc ctg gca gtg	3304
Ala Lys Gln Leu Leu Leu His Ile Cys His Asp Leu Thr Leu Ala Val	
935 940 945 950	
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Glu Val Tyr Ser Ala Phe Leu Pro Asp Gly Cys Asp His Leu Arg Asp	
983 988 993 998	

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Lys Leu Gly Asp His Gln Ser Pro Ala Thr Pro Ala Phe Lys Ser Leu	
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gag gcc ttt ttt ctt tat ggg cgt ctg tat gaa ttc tgg tgg tct ctc	3544
Glu Ala Phe Phe Leu Tyr Gly Arg Leu Tyr Glu Phe Trp Trp Ser Leu	
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aca ctc tct gtt gag cca agc cag cag tta gac act gcc agc act gaa	3640
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1063 1068 1073 1078	
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Lys Glu Leu Phe Ser Glu Lys His Ala Ser Leu Gln Asn Ser Gln Arg	
1095 1100 1105 1110	
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1143 1148 1153 1158	
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Cys Lys Glu Glu Lys Asn Glu Pro Leu Ser Leu Pro Glu Leu Thr Lys	
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Arg Leu Thr Glu Ala Asn Gln Arg Met Ala Lys Phe Pro Glu Ser Ile	
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Lys Ala Trp Pro Phe Pro Asp Val Leu Glu Cys Cys Leu Val Leu Leu	
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Arg	His	Cys	Gln	Thr	Phe	Cys	Met	*								
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Glu Glu Trp Glu Cys Leu Asp Pro Ala Gln Arg Asp Leu Tyr Arg Asp	
18 23 28 33	
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Val Met Leu Glu Asn Tyr Ser Asn Leu Ile Ser Leu Asp Leu Glu Ser	
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Ser Cys Val Thr Lys Lys Leu Ser Pro Glu Lys Glu Ile Tyr Glu Met	
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Glu Ser Leu Gln Trp Glu Asn Met Gly Lys Arg Ile Asn His His Leu	
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Ser Ile Gln Trp Ser Trp Arg Gln Tyr Gly Val Gln Arg Gln Leu Arg	
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Gly Ser Ser Lys Gln Val Arg Arg Ala Leu His Val Cys Gln Asn Tyr	
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Leu *	
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 Phe Arg Ala Ala Leu Glu Glu Val Glu Gly Asp Val Ala Glu Leu Glu
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Leu Lys Leu Asp Lys Leu Val Lys Leu Gly Ile Ala Met Ile Asp Thr	
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Asp Leu Ala Gln Tyr Ser Ser Asn Asp Ala Val Val Glu Thr Ser Leu	
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Thr Lys Phe Ser Asp Ser Leu Gln Glu Met Ile Asn Phe His Thr Ile	
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Leu Leu Pro Asn Ser Glu Ile Asn Leu Arg His Ser Phe Ser Asn Phe	
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Leu Phe Lys Arg Ala Ser Asn Ala Phe Lys Thr Trp Asn Arg Arg Trp	
273 278 283 288	
ttt tca ata cag aat aat cag ttg gtt tac cag aaa aaa ttt aag gat	972
Phe Ser Ile Gln Asn Asn Gln Leu Val Tyr Gln Lys Lys Phe Lys Asp	
289 294 299 304	
aat ccg act gtg gta gtt gaa gac ctc agg ctt tgc aca gtg aaa cat	1020
Asn Pro Thr Val Val Val Glu Asp Leu Arg Leu Cys Thr Val Lys His	
305 310 315 320	
tgt gaa gac ata gag cga cga ttc tgc ttt gag gtg gtc tcg cca aca	1068
Cys Glu Asp Ile Glu Arg Arg Phe Cys Phe Glu Val Val Ser Pro Thr	
321 326 331 336	
aaa agt tgc atg ctc cag gca gat tcc gaa aag ctg cgc cag gca tgg	1116
Lys Ser Cys Met Leu Gln Ala Asp Ser Glu Lys Leu Arg Gln Ala Trp	
337 342 347 352	
att aag gct gtt cag acc agt att gct act gct tat aga gag aag ggt	1164
Ile Lys Ala Val Gln Thr Ser Ile Ala Thr Ala Tyr Arg Glu Lys Gly	
353 358 363 368	
gat gaa tca gag aag ctg gat aag aaa tca tct cca tcc aca gga agc	1212
Asp Glu Ser Glu Lys Leu Asp Lys Lys Ser Ser Pro Ser Thr Gly Ser	
369 374 379 384	
cta gat tct gga aat gag tcc aaa gag aaa tta ttg aaa gga gaa agt	1260
Leu Asp Ser Gly Asn Glu Ser Lys Glu Lys Leu Leu Lys Gly Glu Ser	
385 390 395 400	
gcg ctt cag cgg gtc cag tgt atc cct ggc aat gcc agc tgt tgt gac	1308
Ala Leu Gln Arg Val Gln Cys Ile Pro Gly Asn Ala Ser Cys Cys Asp	
401 406 411 416	
tgt ggc ctg gca gat cca cgg tgg gcc agc atc aac ctg ggc atc acc	1356
Cys Gly Leu Ala Asp Pro Arg Trp Ala Ser Ile Asn Leu Gly Ile Thr	
417 422 427 432	
ttg tgt atc gag tgc tcc gga att cac cgg agc ctt ggg gtt cat ttt	1404
Leu Cys Ile Glu Cys Ser Gly Ile His Arg Ser Leu Gly Val His Phe	
433 438 443 448	
tca aaa gta cga tct tta act tta gac acc tgg gag cca gaa ctt tta	1452
Ser Lys Val Arg Ser Leu Thr Leu Asp Thr Trp Glu Pro Glu Leu Leu	
449 454 459 464	
aag ctt atg tgt gag ttg ggg aat gat gtt ata aat cga gtt tat gaa	1500
Lys Leu Met Cys Glu Leu Gly Asn Asp Val Ile Asn Arg Val Tyr Glu	
465 470 475 480	
gct aat gtg gaa aaa atg gga ata aag aaa ccc caa cca gga caa aga	1548
Ala Asn Val Glu Lys Met Gly Ile Lys Lys Pro Gln Pro Gly Gln Arg	

481	486	491	496	
cag gag aag gag gca tat atc aga gca aaa tat gtg gag agg aaa ttt				1596
Gln Glu Lys Glu Ala Tyr Ile Arg Ala Lys Tyr Val Glu Arg Lys Phe				
497	502	507	512	
gtg gat aaa tat tct ata tca tta tca cct cct gag cag caa aaa aag				1644
Val Asp Lys Tyr Ser Ile Ser Leu Ser Pro Pro Glu Gln Gln Lys Lys				
513	518	523	528	
ttt gtc tct aaa agt tct gaa gaa aag agg ctg agc att tct aaa ttt				1692
Phe Val Ser Lys Ser Ser Glu Glu Lys Arg Leu Ser Ile Ser Lys Phe				
529	534	539	544	
ggg cca ggg gac caa gtc aga gca tct gcc caa agt tca gtc aga agt				1740
Gly Pro Gly Asp Gln Val Arg Ala Ser Ala Gln Ser Ser Val Arg Ser				
545	550	555	560	
aat gac agt gga att cag cag agc tct gat gat gga aga gaa tct tta				1788
Asn Asp Ser Gly Ile Gln Gln Ser Ser Asp Asp Gly Arg Glu Ser Leu				
561	566	571	576	
ccc tcc acg gtg tca gcc aat agt tta tat gag cct gaa gga gaa agg				1836
Pro Ser Thr Val Ser Ala Asn Ser Leu Tyr Glu Pro Glu Gly Glu Arg				
577	582	587	592	
caa gat tct tct atg ttt ctt gac tcg aaa cat ctt aat cca gga ctt				1884
Gln Asp Ser Ser Met Phe Leu Asp Ser Lys His Leu Asn Pro Gly Leu				
593	598	603	608	
cag ctt tat agg gcg tca tat gaa aaa aac ctt cct aaa atg gct gag				1932
Gln Leu Tyr Arg Ala Ser Tyr Glu Lys Asn Leu Pro Lys Met Ala Glu				
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gct ttg gct cat ggt gca gac gtg aac tgg gcc aat tca gag gaa aac				1980
Ala Leu Ala His Gly Ala Asp Val Asn Trp Ala Asn Ser Glu Glu Asn				
625	630	635	640	
aaa gcg aca cca ctt att cag gct gta tta ggg ggc tct ttg gtg acg				2028
Lys Ala Thr Pro Leu Ile Gln Ala Val Leu Gly Gly Ser Leu Val Thr				
641	646	651	656	
tgt gag ttc ctc cta cag aat ggt gct aat gtc aac caa aga gat gtc				2076
Cys Glu Phe Leu Leu Gln Asn Gly Ala Asn Val Asn Gln Arg Asp Val				
657	662	667	672	
caa ggg cgg gga cca ttg cac cat gcc acc gtc tta ggg cac aca ggg				2124
Gln Gly Arg Gly Pro Leu His His Ala Thr Val Leu Gly His Thr Gly				
673	678	683	688	
cag gta tgt tta ttc cta aaa cga ggt gcc aat caa cat gcc act gat				2172
Gln Val Cys Leu Phe Leu Lys Arg Gly Ala Asn Gln His Ala Thr Asp				
689	694	699	704	
gaa gaa ggg aaa gac cct ttg agc ata gct gtg gaa gca gcc aat gct				2220
Glu Glu Gly Lys Asp Pro Leu Ser Ile Ala Val Glu Ala Ala Asn Ala				
705	710	715	720	

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Asp Ile Val Thr Leu Leu Arg Leu Ala Arg Met Asn Glu Glu Met Arg	
721 726 731 736	
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Glu Ser Glu Gly Leu Tyr Gly Gln Pro Gly Asp Glu Thr Tyr Gln Asp	
737 742 747 752	
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Ile Phe Arg Asp Phe Ser Gln Met Ala Ser Asn Asn Pro Glu Lys Leu	
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Asn Arg Phe Gln Gln Asp Ser Gln Lys Phe *	
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Ala Thr Pro Pro Leu Pro Lys Pro Val Asn Thr Ser Leu Ser Pro Ser	
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cca gca ttg gct ttg cca aac ctg gct aat gtg gat ctg gca aag atc	801
Pro Ala Leu Ala Leu Pro Asn Leu Ala Asn Val Asp Leu Ala Lys Ile	
116 121 126 131	
agt tcc atc ctt agc agt tta aca tca gtc atg aaa aat act ggg gtc	849
Ser Ser Ile Leu Ser Ser Leu Thr Ser Val Met Lys Asn Thr Gly Val	
132 137 142 147	
agt cct gca tca aga cct tct cca gga acg ccc acc agc ccc agc aac	897
Ser Pro Ala Ser Arg Pro Ser Pro Gly Thr Pro Thr Ser Pro Ser Asn	
148 153 158 163	
ctc acc agt ggc ctg aaa aca cct gca cct gcc acg aca aca tct cac	945
Leu Thr Ser Gly Leu Lys Thr Pro Ala Pro Ala Thr Thr Thr Ser His	
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Asn Pro Leu Ala Asn Ile Leu Ser Lys Val Glu Ile Thr Pro Glu Ser	
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Gln Gly Leu Ser Ser Leu Leu Gln Ser Val Thr Gly Asn Pro Val Pro	
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Ala Ser Glu Ala Ala Ser Gln Ser Thr Ser Ala Ser Pro Ala Asn Thr	
228 233 238 243	
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Thr Val Ser Thr Ile Lys Gly Arg Asn Leu Pro Ser Ser Ala Gln Pro	
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Phe Ile Pro Lys Ser Phe Asn Tyr Ser Pro Asn Ser Ser Thr Ser Glu	
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Val Ser Ser Thr Ser Ala Ser Lys Ala Ser Ile Gly Gln Ser Pro Gly	
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Leu Pro Ser Thr Thr Phe Lys Leu Pro Ser Asn Ser Leu Gly Phe Thr	
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Ala Thr His Asn Thr Ser Pro Ala Ala Pro Pro Thr Glu Val Thr Ile	
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388 393 398 403	
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Arg Ser Gly Thr Pro Thr Gln Asp Glu Met Met Asp Lys Pro Thr Ser	
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Ser Ser Val Asp Thr Met Ser Leu Leu Ser Lys Ile Ile Ser Pro Gly	
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Thr Ser Phe Gln Glu Asp Glu Asp Tyr Arg Asp Phe Glu Tyr Ser Gly	
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516 521 526 531	
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Ile Leu Lys Ser Ser Lys Leu Ser Asp Thr Thr Glu Tyr Gln Pro Ile	
532 537 542 547	
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Phe	Pro	Pro	Ser	Val	Arg	Ala	Leu	Leu	Asp	Ser	Ser	Glu	Asn	Cys	Asp		
564					569					574					579		
cgt	ctc	tca	tct	tcc	cct	ggg	cta	ttt	ggg	gcc	ttc	agc	gta	aga	ggg	2193	
Arg	Leu	Ser	Ser	Ser	Pro	Gly	Leu	Phe	Gly	Ala	Phe	Ser	Val	Arg	Gly		
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596					601					606					611		
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Phe	Phe	Thr	Pro	Asp	Ser	Asn	His	Asn	Ser	Leu	Ser	Gln	Ser	Thr	Thr		
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Val	Pro	His	Arg	Ser	Leu	Phe	Ser	Pro	Gln	Asn	Thr	Leu	Ala	Ala	Pro		
644					649					654					659		
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Thr	Gly	His	Pro	Pro	Thr	Ser	Gly	Val	Glu	Lys	Val	Leu	Ala	Ser	Thr		
660					665					670					675		
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Ile	Ser	Thr	Thr	Ser	Thr	Ile	Glu	Phe	Lys	Asn	Met	Leu	Lys	Asn	Ala		
676					681					686					691		
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756					761					766					771		
agg	atg	tca	ggg	gag	ccg	atc	cag	acc	gta	gag	tcc	atc	cga	gtt	cct	2769	
Arg	Met	Ser	Gly	Glu	Pro	Ile	Gln	Thr	Val	Glu	Ser	Ile	Arg	Val	Pro		

772	777	782	787	
ggg aag gga aat aga gga cat ggg cgt gag gct tca agg gtg ggt tgg Gly Lys Gly Asn Arg Gly His Gly Arg Glu Ala Ser Arg Val Gly Trp 788 793 798 803				2817
ttt gat ctg agc aca tca ggt agc tct ttt gac aat ggc cct tca agt Phe Asp Leu Ser Thr Ser Gly Ser Ser Phe Asp Asn Gly Pro Ser Ser 804 809 814 819				2865
gcc tct gag ttg gca tcc ctt ggg ggt ggg ggc agc gga ggc ctc act Ala Ser Glu Leu Ala Ser Leu Gly Gly Gly Gly Ser Gly Gly Leu Thr 820 825 830 835				2913
ggc ttt aaa aca gca cca tac aag gaa cgg gca cct caa ttt cag gag Gly Phe Lys Thr Ala Pro Tyr Lys Glu Arg Ala Pro Gln Phe Gln Glu 836 841 846 851				2961
agt gtc ggc cgc ttt cgt tcc aac agt ttc aac tca aca ttt gag cat Ser Val Gly Arg Phe Arg Ser Asn Ser Phe Asn Ser Thr Phe Glu His 852 857 862 867				3009
cat ctt ccc cca tcc ccc ttg gaa cat ggg aca ccc ttc cag aga gag His Leu Pro Pro Ser Pro Leu Glu His Gly Thr Pro Phe Gln Arg Glu 868 873 878 883				3057
cca gtg ggg cca tca tct gcc cca cct gtc cct cct aag gat cat ggt Pro Val Gly Pro Ser Ser Ala Pro Pro Val Pro Pro Lys Asp His Gly 884 889 894 899				3105
ggt atc ttc tct cga gat gca ccc act cat cta ccc tct gtg gat ctt Gly Ile Phe Ser Arg Asp Ala Pro Thr His Leu Pro Ser Val Asp Leu 900 905 910 915				3153
tcg aac ccc ttc aca aag gag gca gcc ctg gcc cat gct gcc cca ccc Ser Asn Pro Phe Thr Lys Glu Ala Ala Leu Ala His Ala Ala Pro Pro 916 921 926 931				3201
cct cct cct gga gag cac agt gga att cct ttc cct acc cca cct cct Pro Pro Pro Gly Glu His Ser Gly Ile Pro Phe Pro Thr Pro Pro Pro 932 937 942 947				3249
cct ccc cct cct ggg gaa cat agc agc agt ggt ggg agt ggt gtc ccc Pro Pro Pro Pro Gly Glu His Ser Ser Ser Gly Gly Ser Gly Val Pro 948 953 958 963				3297
ttt tct act cca ccc cct cct cca ccc cct gtt gac cac tct gga gtt Phe Ser Thr Pro Pro Pro Pro Pro Pro Val Asp His Ser Gly Val 964 969 974 979				3345
gta ccc ttc cca gcc cca cca ctg gca gag cac gga gtg gca ggg gct Val Pro Phe Pro Ala Pro Pro Leu Ala Glu His Gly Val Ala Gly Ala 980 985 990 995				3393
gtg gca gta ttt ccc aag gac cat agt tcc ctc ctt caa ggg acc ctg Val Ala Val Phe Pro Lys Asp His Ser Ser Leu Leu Gln Gly Thr Leu 996 1001 1006 1011				3441

Met Ala
1

gcg gag gaa cct cag cag cag aag cag gag ccg ctg ggc agc gac tcc Ala Glu Glu Pro Gln Gln Gln Lys Gln Glu Pro Leu Gly Ser Asp Ser 3 8 13 18	165
gaa ggt gtt aac tgt ctg gcc tat gat gaa gcc atc atg gct cag cag Glu Gly Val Asn Cys Leu Ala Tyr Asp Glu Ala Ile Met Ala Gln Gln 19 24 29 34	213
gac cga att cag caa gag att gct gtg cag aac cct ctg gtg tca gag Asp Arg Ile Gln Gln Glu Ile Ala Val Gln Asn Pro Leu Val Ser Glu 35 40 45 50	261
cgg ctg gag ctc tcg gtc cta tac aag gag tat gct gaa gat gac aac Arg Leu Glu Leu Ser Val Leu Tyr Lys Glu Tyr Ala Glu Asp Asp Asn 51 56 61 66	309
atc tat caa cag aag atc aag gac ctc cac aaa aag tac tcg tac atc Ile Tyr Gln Gln Lys Ile Lys Asp Leu His Lys Lys Tyr Ser Tyr Ile 67 72 77 82	357
cgc aag acc agg cct gac ggc aac tgt ttc tat cgg gct ttc gga ttc Arg Lys Thr Arg Pro Asp Gly Asn Cys Phe Tyr Arg Ala Phe Gly Phe 83 88 93 98	405
tcc cac ttg gag gca ctg ctg gat gac agc aag gag ttg cag cgg ttc Ser His Leu Glu Ala Leu Leu Asp Asp Ser Lys Glu Leu Gln Arg Phe 99 104 109 114	453
aag gct gtg tct gcc aag agc aag gaa gac ctg gtg tcc cag ggc ttc Lys Ala Val Ser Ala Lys Ser Lys Glu Asp Leu Val Ser Gln Gly Phe 115 120 125 130	501
act gaa ttc aca att gag gat ttc cac aac acg ttc atg gac ctg att Thr Glu Phe Thr Ile Glu Asp Phe His Asn Thr Phe Met Asp Leu Ile 131 136 141 146	549
gag cag gtg gag aag cag acc tct gtc gcc gac ctg ctg gcc tcc ttc Glu Gln Val Glu Lys Gln Thr Ser Val Ala Asp Leu Leu Ala Ser Phe 147 152 157 162	597
aat gac cag agc acc tcc gac tac ctt gtg gtc tac ctg cgg ctg ctc Asn Asp Gln Ser Thr Ser Asp Tyr Leu Val Val Tyr Leu Arg Leu Leu 163 168 173 178	645
acc tcg ggc tac ctg cag cgc gag agc aag ttc ttc gag cac ttc atc Thr Ser Gly Tyr Leu Gln Arg Glu Ser Lys Phe Phe Glu His Phe Ile 179 184 189 194	693
gag ggt gga cgg act gtc aag gag ttc tgc cag cag gag gtg gag ccc Glu Gly Gly Arg Thr Val Lys Glu Phe Cys Gln Gln Glu Val Glu Pro 195 200 205 210	741
atg tgc aag gag agc gac cac atc cac atc att gcg ctg gcc cag gcc Met Cys Lys Glu Ser Asp His Ile His Ile Ile Ala Leu Ala Gln Ala	789

211	216	221	226		
ctc agc gtg tcc atc	cag gtg gag tac atg	gac cgc ggc gag ggc ggc		837	
Leu Ser Val Ser Ile	Gln Val Glu Tyr Met	Asp Arg Gly Glu Gly Gly			
227	232	237	242		
acc acc aat ccg cac	atc ttc cct gag ggc	tcc gag ccc aag gtc tac		885	
Thr Thr Asn Pro His	Ile Phe Pro Glu Gly	Ser Glu Pro Lys Val Tyr			
243	248	253	258		
ctt ctc tac cgg cct	gga cac tac gat atc	ctc tac aaa tag ggctggc		934	
Leu Leu Tyr Arg Pro	Gly His Tyr Asp Ile	Leu Tyr Lys *			
259	264	269			
tccagcccg	tgctgccctg	ctgccccct	ctgccaggcg	ctagacatgt acagaggttt	994
ttctgtgggt	gtaaatggtc	ctatttcacc	cccttcttcc	tgtcacatga cccccccccc	1054
atgttttatt	aaagggggtg	ctggtggtga	aaaaaaaa		1091

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 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (467)..(2026)

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cttttaagtt actatcaaat	ctatacatct atctcgtttg	catgctttta aattttattt	120
ttaaaaacat ttagtggtga	tatttatgaa aggaaatgat	tacttttttt cttgactctt	180
gtagagggaac ttaaatggtt	tgaaattgtg actcagttaa	ctctgtatcc attcattccc	240
agaaacaagc cgcatttctc	cttgggggaga ctgataattt	aaaagggttg ttgtgtcaga	300
aacattccca gttcatcac	caaccctttc cttccacctc	tgcccaotgg agaccactta	360
catcccgaag cggacgcggc	agctgaagtc aggaaaccat	gcatcacatt agcaggagcc	420
aactgcagac tttaaactcc	gttcaacatg tggatgcggc	agagaa atg acc tgt	475
		Met Thr Cys	
		1	
cca gac aag ccg ggg	cag ctc ata aac tgg	ttc atc tgc tcc ctg tgc	523
Pro Asp Lys Pro Gly	Gln Leu Ile Asn Trp	Phe Ile Cys Ser Leu Cys	
4 /	9	14	19
gtc ccg cgg gtg cgt	aag ctc tgg agc agc	cgg cgt cca agg acc cgg	571
Val Pro Arg Val Arg	Lys Leu Trp Ser Ser	Arg Arg Pro Arg Thr Arg	

20	25	30	35	
aga aac ctt ctg ctg ggc act gcg tgt gcc atc tac ttg ggc ttc ctg				619
Arg Asn Leu Leu Leu Gly Thr Ala Cys Ala Ile Tyr Leu Gly Phe Leu				
36	41	46	51	
gtg agc cag gtg ggg agg gcc tct ctc cag cat gga cag gcg gct gag				667
Val Ser Gln Val Gly Arg Ala Ser Leu Gln His Gly Gln Ala Ala Glu				
52	57	62	67	
aag ggg cca cat cgc agc cgc gac acc gcc gag cca tcc ttc cct gag				715
Lys Gly Pro His Arg Ser Arg Asp Thr Ala Glu Pro Ser Phe Pro Glu				
68	73	78	83	
ata ccc ctg gat ggt acc ctg gcc cct cca gag tcc cag ggc aat ggg				763
Ile Pro Leu Asp Gly Thr Leu Ala Pro Pro Glu Ser Gln Gly Asn Gly				
84	89	94	99	
tcc act ctg cag ccc aat gtg gtg tac att acc cta cgc tcc aag cgc				811
Ser Thr Leu Gln Pro Asn Val Val Tyr Ile Thr Leu Arg Ser Lys Arg				
100	105	110	115	
agc aag ccg gcc aat atc cgt ggc acc gtg aag ccc aag cgc agg aaa				859
Ser Lys Pro Ala Asn Ile Arg Gly Thr Val Lys Pro Lys Arg Arg Lys				
116	121	126	131	
aag cat gca gtg gca tcg gct gcc cca ggg cag gag gct ttg gtc gga				907
Lys His Ala Val Ala Ser Ala Ala Pro Gly Gln Glu Ala Leu Val Gly				
132	137	142	147	
cca tcc ctt cag ccg cag gaa gcg gca agg gaa gct gat gct gta gca				955
Pro Ser Leu Gln Pro Gln Glu Ala Ala Arg Glu Ala Asp Ala Val Ala				
148	153	158	163	
cct ggg tac gct cag gga gca aac ctg gtt aag att gga gag cga ccc				1003
Pro Gly Tyr Ala Gln Gly Ala Asn Leu Val Lys Ile Gly Glu Arg Pro				
164	169	174	179	
tgg agg ttg gtg cgg ggt ccg gga gtg cga gcc ggg ggc cca gac ttc				1051
Trp Arg Leu Val Arg Gly Pro Gly Val Arg Ala Gly Gly Pro Asp Phe				
180	185	190	195	
ctg cag ccc agc tcc agg gag agc aac att agg atc tac agc gag agc				1099
Leu Gln Pro Ser Ser Arg Glu Ser Asn Ile Arg Ile Tyr Ser Glu Ser				
196	201	206	211	
gcc ccc tcc tgg ctg agc aaa gat gac atc cga aga atg cga ctc ttg				1147
Ala Pro Ser Trp Leu Ser Lys Asp Asp Ile Arg Arg Met Arg Leu Leu				
212	217	222	227	
gcg gac agc gca gtg gca ggg ctc cgg cct gtg tcc tct agg agc gga				1195
Ala Asp Ser Ala Val Ala Gly Leu Arg Pro Val Ser Ser Arg Ser Gly				
228	233	238	243	
gcc cgt ttg ctg gtg ctg gag ggg ggc gca cct ggc gct gtg ctc cgc				1243
Ala Arg Leu Leu Val Leu Glu Gly Gly Ala Pro Gly Ala Val Leu Arg				
244	249	254	259	

tgt ggc cct agc ccc	tgt ggg ctt ctc aag	cag ccc ttg gac atg agt	1291
Cys Gly Pro Ser Pro	Cys Gly Leu Leu Lys	Gln Pro Leu Asp Met Ser	
260	265	270 275	
gag gtg ttt gcc ttc	cac cta gac agg atc	ctg ggg ctc aac agg acc	1339
Glu Val Phe Ala Phe	His Leu Asp Arg Ile	Leu Gly Leu Asn Arg Thr	
276	281	286 291	
ctg ccg tct gtg agc	agg aaa gca gag ttc	atc caa gat ggc cgc cca	1387
Leu Pro Ser Val Ser	Arg Lys Ala Glu Phe	Ile Gln Asp Gly Arg Pro	
292	297	302 307	
tgc ccc atc att ctt	tgg gat gca tct tta	tct tca gca agt aat gac	1435
Cys Pro Ile Ile Leu	Trp Asp Ala Ser Leu	Ser Ser Ala Ser Asn Asp	
308	313	318 323	
acc cat tct tct gtt	aag ctc acc tgg gga	act tat cag cag ttg ctg	1483
Thr His Ser Ser Val	Lys Leu Thr Trp Gly	Thr Tyr Gln Gln Leu Leu	
324	329	334 339	
aaa cag aaa tgc tgg	cag aat ggc cga gta	ccc aag cct gaa tca ggt	1531
Lys Gln Lys Cys Trp	Gln Asn Gly Arg Val	Pro Lys Pro Glu Ser Gly	
340	345	350 355	
tgt act gaa ata cat	cat cat gag tgg tcc	aag atg gca ctc ttt gat	1579
Cys Thr Glu Ile His	His His Glu Trp Ser	Lys Met Ala Leu Phe Asp	
356	361	366 371	
ttt ttg tta cag att	tat aat cgc tta gat	aca aat tgc tgt gga ttc	1627
Phe Leu Leu Gln Ile	Tyr Asn Arg Leu Asp	Thr Asn Cys Cys Gly Phe	
372	377	382 387	
aga cct cgc aag gaa	gat gcc tgt gta cag	aat gga ttg agg cca aaa	1675
Arg Pro Arg Lys Glu	Asp Ala Cys Val Gln	Asn Gly Leu Arg Pro Lys	
388	393	398 403	
tgt gat gac caa ggt	tct gcg gct cta gca	cac att atc cag cga aag	1723
Cys Asp Asp Gln Gly	Ser Ala Ala Leu Ala	His Ile Ile Gln Arg Lys	
404	409	414 419	
cat gac cca agg cat	ttg gtt ttt ata gac	aac aag ggt ttc ttt gac	1771
His Asp Pro Arg His	Leu Val Phe Ile Asp	Asn Lys Gly Phe Phe Asp	
420	425	430 435	
agg agt gaa gat aac	tta aac ttc aaa ttg	tta gaa ggc atc aaa gag	1819
Arg Ser Glu Asp Asn	Leu Asn Phe Lys Leu	Leu Glu Gly Ile Lys Glu	
436	441	446 451	
ttt cca gct tct gca	gtt tct gtt ttg aag	agc cag cac tta cgg cag	1867
Phe Pro Ala Ser Ala	Val Ser Val Leu Lys	Ser Gln His Leu Arg Gln	
452	457	462 467	
aaa ctt ctt cag tct	ctg ttt ctt gat aaa	gtg tat tgg gaa agt caa	1915
Lys Leu Leu Gln Ser	Leu Phe Leu Asp Lys	Val Tyr Trp Glu Ser Gln	
468	473	478 483	

gga ggt aga caa gga att gaa aag ctt atc gat gta ata gaa cac aga 1963
 Gly Gly Arg Gln Gly Ile Glu Lys Leu Ile Asp Val Ile Glu His Arg
 484 489 494 499

gcc aaa att ctt atc acc tat atc aat gca cac ggg gtc aaa gta tta 2011
 Ala Lys Ile Leu Ile Thr Tyr Ile Asn Ala His Gly Val Lys Val Leu
 500 505 510 515

cct atg aat gaa tga caaaagaatc ttctggctag ggtgtagat atatttatgc 2066
 Pro Met Asn Glu *
 516

atttttggtt ttgttttttaa atcaagcaca tcaacctcaa gccggttag caatgaggca 2126

gtgtagatga atacgtaaaa taaatgactt taaccaagta gctataatgg gacttagcac 2186

tgtatgcata cttaaaaagg ttttgaaaaa caaactactt gagaaatatt tgtttatatt 2246

tttctctaac atcatgctat gtgtcagtct gaacatctga caacagaaat ttcagttatt 2306

attctagcta agttttgaaa acatttgtca tgctgtttta tagaaaactg caaaccagag 2366

atactgactc cattaataaaa ccatattttg tgccgttttg aaaaaaaaaa aa 2418

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<211> 1711

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (664) .. (1551)

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ccaggtgacc ttccctccac cccaggaagc tatgacagag gccgggaagc tgcccctacc 120

gctaccccca cggctggact ggtttgtgca caccagatg ggccagctgg cccaagacgg 180

ggccccgag tggttccatg gtgcaatctc aagagaggat gctgagaact tgctggagtc 240

acagccactg ggatccttcc tcatcagggt cagtcacagc catgtgggct acacactctc 300

ctacaagtaa ggcctgggcc gggatccagg gcaggggcag gtgggctctt gggtttctct 360

ggagggggca aggggtgctt catgtcatag cttctcagaa agcagcagta actgaggctg 420

tggatctgag aacgggagct gctagccaag caatgagtga agcttttgtc cgtagtggca 480

tgttttatct gaggccagcc tttgtactcc tgtgttataa atgggggaaa ctgaggcaca 540

gcgaggttag taacctgctg ggtgttgcac ggccagttag tgaagaagcc tgcatgggaa 600

cctggggtag tctggctgta gcagtgaacgc tgccggccca agggctgggg acttggggca	660
ggg atg agg ggg agt agg atg tcc cag ccc ccg cag tgt ctc cgc aga Met Arg Gly Ser Arg Met Ser Gln Pro Pro Gln Cys Leu Arg Arg	708
1 5 10	
gcc caa agc agc tgc tgc cat ttc atg gtg aag ctc ttg gat gat ggg Ala Gln Ser Ser Cys Cys His Phe Met Val Lys Leu Leu Asp Asp Gly	756
16 21 26 31	
act ttc atg atc ccc ggg gag aag gtg gcc cac acc tcg ctg gac gcc Thr Phe Met Ile Pro Gly Glu Lys Val Ala His Thr Ser Leu Asp Ala	804
32 37 42 47	
ctg gtc acc ttc cac cag cag aag cca att gag ccg cgc agg gag ctg Leu Val Thr Phe His Gln Gln Lys Pro Ile Glu Pro Arg Arg Glu Leu	852
48 53 58 63	
ctg aca cag ccc tgc agg cag aag gat ccc gca aac gtg gat tac gag Leu Thr Gln Pro Cys Arg Gln Lys Asp Pro Ala Asn Val Asp Tyr Glu	900
64 69 74 79	
gat ctc ttc ctc tac tcc aac gca gtg gcc gag gaa gct gcc tgc ccg Asp Leu Phe Leu Tyr Ser Asn Ala Val Ala Glu Glu Ala Ala Cys Pro	948
80 85 90 95	
gtg tct gcc cct gag gag gcc tcc cca aag cca gtc ctg tgt cac caa Val Ser Ala Pro Glu Glu Ala Ser Pro Lys Pro Val Leu Cys His Gln	996
96 101 106 111	
tca aag gaa agg aag ccg tca gca gag atg aac aga ata acc acc aag Ser Lys Glu Arg Lys Pro Ser Ala Glu Met Asn Arg Ile Thr Thr Lys	1044
112 117 122 127	
gaa gcc act tcc tcc tgc ccc cca aaa tcc cct ctt gga gag acc cgc Glu Ala Thr Ser Ser Cys Pro Pro Lys Ser Pro Leu Gly Glu Thr Arg	1092
128 133 138 143	
cag aaa ctc tgg agg agc ctc aaa atg ctc ccc gag aga ggc cag agg Gln Lys Leu Trp Arg Ser Leu Lys Met Leu Pro Glu Arg Gly Gln Arg	1140
144 149 154 159	
gtc cgg cag cag cta aaa agc cac ctc gcc act gtg aac ttg tcg tca Val Arg Gln Gln Leu Lys Ser His Leu Ala Thr Val Asn Leu Ser Ser	1188
160 165 170 175	
ctc ttg gat gtc cgg aga tcc acg gtg atc tca ggc cct ggg acc gga Leu Leu Asp Val Arg Arg Ser Thr Val Ile Ser Gly Pro Gly Thr Gly	1236
176 181 186 191	
aaa ggc agc caa gat cac tca ggg gat ccc acc tcg ggg gac aga ggc Lys Gly Ser Gln Asp His Ser Gly Asp Pro Thr Ser Gly Asp Arg Gly	1284
192 197 202 207	
tac acg gat ccc tgt gtg gcc aca tct ctc aaa agc ccc tca cag ccc Tyr Thr Asp Pro Cys Val Ala Thr Ser Leu Lys Ser Pro Ser Gln Pro	1332
208 213 218 223	

cag gca cca aaa gac aga aag gtc ccc acc agg aag gcc gag agg tcg	1380
Gln Ala Pro Lys Asp Arg Lys Val Pro Thr Arg Lys Ala Glu Arg Ser	
224 229 234 239	

gtc agc tgc att gag gtg acc cca ggg gac agg agt tgg cac caa atg	1428
Val Ser Cys Ile Glu Val Thr Pro Gly Asp Arg Ser Trp His Gln Met	
240 245 250 255	

gta gtg aga gcc cta tcc tcc cag gag tcc aag cca gag cac cag ggc	1476
Val Val Arg Ala Leu Ser Ser Gln Glu Ser Lys Pro Glu His Gln Gly	
256 261 266 271	

ttg gca gag cct gag aac gac cag ctc ccg gag gag tac caa caa ccg	1524
Leu Ala Glu Pro Glu Asn Asp Gln Leu Pro Glu Glu Tyr Gln Gln Pro	
272 277 282 287	

cca ccc ttt gcc cct ggg tac tgc tag agaac aggtccaccc tggctctggg	1576
Pro Pro Phe Ala Pro Gly Tyr Cys *	
288 293	

actcgctgcc aggggctgcc acactcctga atgccttaac atttcttcca tggccccaca	1636
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gcagagcagc atctgctgaa gagacagaaa ccagccccag aggtgtcaca ggaaggcacc	180
agcaaggaca ttgggtctttg atttgattca gcagtcctgt caagtataaa tgtg atg	237
	Met
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gct gtg ctg cct ggc cct ctg cag ctg ctg gga gtg ctg ctt acc att	285
Ala Val Leu Pro Gly Pro Leu Gln Leu Leu Gly Val Leu Leu Thr Ile	
2 7 12 17	

tcc ctg agt tcc atc agg ctc att cag gct ggt gcc tac tat ggg atc	333
Ser Leu Ser Ser Ile Arg Leu Ile Gln Ala Gly Ala Tyr Tyr Gly Ile	
18 23 28 33	

aag ccg ctg cca cct caa att cct cct cag atg cca cca caa att cca	381
Lys Pro Leu Pro Pro Gln Ile Pro Pro Gln Met Pro Pro Gln Ile Pro	
34 39 44 49	
caa tac cag ccc ctg ggt cag caa gta cct cac atg cct ttg gcc aaa	429
Gln Tyr Gln Pro Leu Gly Gln Gln Val Pro His Met Pro Leu Ala Lys	
50 55 60 65	
gat ggc ctc gcc atg ggc aag gag atg ccc cac ttg cag tat ggc aaa	477
Asp Gly Leu Ala Met Gly Lys Glu Met Pro His Leu Gln Tyr Gly Lys	
66 71 76 81	
gag tat cca cac cta ccc caa tat atg aag gaa att cca ccg gcg cca	525
Glu Tyr Pro His Leu Pro Gln Tyr Met Lys Glu Ile Gln Pro Ala Pro	
82 87 92 97	
aga atg ggc aag gaa gcc gtt ccc aag aaa ggc aaa gaa ata cca tta	573
Arg Met Gly Lys Glu Ala Val Pro Lys Lys Gly Lys Glu Ile Pro Leu	
98 103 108 113	
gcc agt tta cga ggg gaa caa ggt ccc cgt gga gag cct ggc cca aga	621
Ala Ser Leu Arg Gly Glu Gln Gly Pro Arg Gly Glu Pro Gly Pro Arg	
114 119 124 129	
gga cca cct ggg ccc cct ggt tta cca ggt cat ggg ata cct gga att	669
Gly Pro Pro Gly Pro Pro Gly Leu Pro Gly His Gly Ile Pro Gly Ile	
130 135 140 145	
aaa gga aaa cca ggg cca cag gga tat cca gga gtt gga aag cca ggt	717
Lys Gly Lys Pro Gly Pro Gln Gly Tyr Pro Gly Val Gly Lys Pro Gly	
146 151 156 161	
atg cct gga atg cca ggg aag cca gga gcc atg ggc atg cct ggg gca	765
Met Pro Gly Met Pro Gly Lys Pro Gly Ala Met Gly Met Pro Gly Ala	
162 167 172 177	
aaa gga gaa att gga cag aaa ggg gaa att ggg cct atg ggg atc cca	813
Lys Gly Glu Ile Gly Gln Lys Gly Glu Ile Gly Pro Met Gly Ile Pro	
178 183 188 193	
gga cca caa gga cct cca ggg cct cat gga ctt cct ggc att ggg aag	861
Gly Pro Gln Gly Pro Pro Gly Pro His Gly Leu Pro Gly Ile Gly Lys	
194 199 204 209	
cca ggt ggg cca ggg tta cca ggg caa cca gga cca aag ggt gat cga	909
Pro Gly Gly Pro Gly Leu Pro Gly Gln Pro Gly Pro Lys Gly Asp Arg	
210 215 220 225	
gga ccc aaa gga cta cca gga cct caa ggc ctt cgg ggt cct aaa gga	957
Gly Pro Lys Gly Leu Pro Gly Pro Gln Gly Leu Arg Gly Pro Lys Gly	
226 231 236 241	
gac aag ggc ttc ggg atg cca ggt gcg cca ggt gta aag ggg cct cca	1005
Asp Lys Gly Phe Gly Met Pro Gly Ala Pro Gly Val Lys Gly Pro Pro	
242 247 252 257	

ggg atg cac ggc cct ccc ggc cct gtt gga ctg cca gga gtg ggc aaa	1053
Gly Met His Gly Pro Pro Gly Pro Val Gly Leu Pro Gly Val Gly Lys	
258 263 268 273	
cca gga gtg aca ggc ttc cct ggg ccc cag ggc ccc ctg gga aag cca	1101
Pro Gly Val Thr Gly Phe Pro Gly Pro Gln Gly Pro Leu Gly Lys Pro	
274 279 284 289	
ggg gct cca gga gaa cct ggg cca caa ggc cct att ggg gta ccg ggg	1149
Gly Ala Pro Gly Glu Pro Gly Pro Gln Gly Pro Ile Gly Val Pro Gly	
290 295 300 305	
gtt caa gga cct cct ggg ata ccc gga att gga aag cca ggc cag gat	1197
Val Gln Gly Pro Pro Gly Ile Pro Gly Ile Gly Lys Pro Gly Gln Asp	
306 311 316 321	
ggg atc cca ggc cag cca gga ttt cca ggt ggc aaa ggg gag caa gga	1245
Gly Ile Pro Gly Gln Pro Gly Phe Pro Gly Gly Lys Gly Glu Gln Gly	
322 327 332 337	
ctg cca ggg cta cca gga ccc cca ggc ctt cca ggg att ggg aaa cca	1293
Leu Pro Gly Leu Pro Gly Pro Pro Gly Leu Pro Gly Ile Gly Lys Pro	
338 343 348 353	
ggc ttc cca gga ccc aaa ggt gac cgg ggc atg gga ggt gtt cct ggg	1341
Gly Phe Pro Gly Pro Lys Gly Asp Arg Gly Met Gly Gly Val Pro Gly	
354 359 364 369	
gct ctt gga cca aga ggg gag aaa gga cca ata ggt gcc cca gga ata	1389
Ala Leu Gly Pro Arg Gly Glu Lys Gly Pro Ile Gly Ala Pro Gly Ile	
370 375 380 385	
ggg ggt cct cca gga gag cca ggc ctg cct gga atc cca ggt cct atg	1437
Gly Gly Pro Pro Gly Glu Pro Gly Leu Pro Gly Ile Pro Gly Pro Met	
386 391 396 401	
ggc cct cca ggt gct att ggt ttt cct gga ccc aaa gga gaa ggt ggg	1485
Gly Pro Pro Gly Ala Ile Gly Phe Pro Gly Pro Lys Gly Glu Gly Gly	
402 407 412 417	
att gta ggg cca cag ggg cca cca ggt ccc aag ggt gag cca ggg ctt	1533
Ile Val Gly Pro Gln Gly Pro Pro Gly Pro Lys Gly Glu Pro Gly Leu	
418 423 428 433	
caa ggc ttc cca gga aag cca ggt ttc ctt ggt gaa gta ggg cct cct	1581
Gln Gly Phe Pro Gly Lys Pro Gly Phe Leu Gly Glu Val Gly Pro Pro	
434 439 444 449	
ggc atg agg ggt ttc cca ggt ccc ata ggc ccc aag ggg gaa cat ggg	1629
Gly Met Arg Gly Phe Pro Gly Pro Ile Gly Pro Lys Gly Glu His Gly	
450 455 460 465	
caa aaa ggt gta cca gga ctc cct ggt gtt cca ggg ctt ctc gga cct	1677
Gln Lys Gly Val Pro Gly Leu Pro Gly Val Pro Gly Leu Leu Gly Pro	
466 471 476 481	
aag gga gaa cca gga atc cca ggg gat cag ggt tta cag ggc ccc cca	1725

Lys Gly Glu Pro Gly Ile Pro Gly Asp Gln Gly Leu Gln Gly Pro Pro
 482 487 492 497

ggt atc cca ggg att ggg ggc cct agt ggc ccc att gga cca cct ggg 1773
 Gly Ile Pro Gly Ile Gly Gly Pro Ser Gly Pro Ile Gly Pro Pro Gly
 498 503 508 513

att cca ggc ccc aaa ggg gag cct ggc ctc cca ggg ccc cct ggg ttc 1821
 Ile Pro Gly Pro Lys Gly Glu Pro Gly Leu Pro Gly Pro Pro Gly Phe
 514 519 524 529

cct ggt ata ggg aaa ccc gga gtg gca gga ctt cat ggc ccc cca ggg 1869
 Pro Gly Ile Gly Lys Pro Gly Val Ala Gly Leu His Gly Pro Pro Gly
 530 535 540 545

aag cct ggt gcc ctt ggt cct caa ggc cag cct ggc ctt cca gga ccc 1917
 Lys Pro Gly Ala Leu Gly Pro Gln Gly Gln Pro Gly Leu Pro Gly Pro
 546 551 556 561

cca ggc cct cca gga cct cca gga ccc cca gct gtg atg ccc cct aca 1965
 Pro Gly Pro Pro Gly Pro Pro Gly Pro Pro Ala Val Met Pro Pro Thr
 562 567 572 577

cca cca ccc cag gga gag tat ctg cca gat atg ggg ctg gga att gat 2013
 Pro Pro Pro Gln Gly Glu Tyr Leu Pro Asp Met Gly Leu Gly Ile Asp
 578 583 588 593

ggc gtg aaa ccc ccc cat gcc tac ggg gct aag aaa ggc aag aat gga 2061
 Gly Val Lys Pro Pro His Ala Tyr Gly Ala Lys Lys Gly Lys Asn Gly
 594 599 604 609

ggg cca gcc tat gag atg cct gca ttt acc gcc gag cta acc gca cct 2109
 Gly Pro Ala Tyr Glu Met Pro Ala Phe Thr Ala Glu Leu Thr Ala Pro
 610 615 620 625

ttc cca ccg gtg ggg gcc cca gtg aag ttt aac aaa ctg ctg tat aac 2157
 Phe Pro Pro Val Gly Ala Pro Val Lys Phe Asn Lys Leu Leu Tyr Asn
 626 631 636 641

ggc aga cag aac tac aac ccg cag aca ggc atc ttc acc tgt gag gtc 2205
 Gly Arg Gln Asn Tyr Asn Pro Gln Thr Gly Ile Phe Thr Cys Glu Val
 642 647 652 657

cct ggt gtc tac tac ttt gca tac cac gtt cac tgc aag ggg ggc aac 2253
 Pro Gly Val Tyr Tyr Phe Ala Tyr His Val His Cys Lys Gly Gly Asn
 658 663 668 673

gtg tgg gtt gct cta ttc aag aac aac gag ccc gtg atg tac acg tac 2301
 Val Trp Val Ala Leu Phe Lys Asn Asn Glu Pro Val Met Tyr Thr Tyr
 674 679 684 689

gac gag tac aaa aag ggc ttc ctg gac cag gca tct ggg agt gca gtg 2349
 Asp Glu Tyr Lys Lys Gly Phe Leu Asp Gln Ala Ser Gly Ser Ala Val
 690 695 700 705

ctg ctg ctc agg ccc gga gac cgg gtg ttc ctc cag atg ccc tca gaa 2397
 Leu Leu Leu Arg Pro Gly Asp Arg Val Phe Leu Gln Met Pro Ser Glu

706	711	716	721	
cag gct gca gga ctg tat gcc ggg cag tat gtc cac tcc tcc ttt tca				2445
Gln Ala Ala Gly Leu Tyr Ala Gly Gln Tyr Val His Ser Ser Phe Ser				
722	727	732	737	
gga tat tta ttg tat ccc atg taa aaacaaaaaaaa aaaaaaaaaa				2487
Gly Tyr Leu Leu Tyr Pro Met *				
738	743			

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 <213> Homo sapiens

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tgttgagacc gtctgcaaag tgtccccggc aagaagaggc tgcctaccac aaggacttta	120
gcttactttt taaagattga agaaaaaaaa gaagacagaa aaagaagaac tcaaagatac	180
acaaagtaat ttgaaccaag gctcagaagt ttttgagacc gtgagggata cagcagtttg	240
gtcaatattg tcttaac atg ctt caa ata aat cag atg ttc tca gtg cag	290
Met Leu Gln Ile Asn Gln Met Phe Ser Val Gln	
1 5	
ctg agt ctt ggt gag cag aca tgg gaa tcc gaa ggc agc agt ata aag	338
Leu Ser Leu Gly Glu Gln Thr Trp Glu Ser Glu Gly Ser Ser Ile Lys	
12 17 22 27	
aag gct cag cag gct gtt gcc aat aaa gct ttg act gaa tct acg ctt	386
Lys Ala Gln Gln Ala Val Ala Asn Lys Ala Leu Thr Glu Ser Thr Leu	
28 33 38 43	
ccc aaa cca gtt cag aag cca ccc aaa agt aat gtt aac aat aac cca	434
Pro Lys Pro Val Gln Lys Pro Pro Lys Ser Asn Val Asn Asn Asn Pro	
44 49 54 59	
ggc agt ata act cca act gtg gaa ctg aat ggg ctt gct atg aaa agg	482
Gly Ser Ile Thr Pro Thr Val Glu Leu Asn Gly Leu Ala Met Lys Arg	
60 65 70 75	
gga gag cct gcc atc tac agg cca tta gat cca aag cca ttc cca aat	530
Gly Glu Pro Ala Ile Tyr Arg Pro Leu Asp Pro Lys Pro Phe Pro Asn	
76 81 86 91	
tat aga gct aat tac aac ttt cgg ggc atg tac aat cag agg tat cat	578

Tyr	Arg	Ala	Asn	Tyr	Asn	Phe	Arg	Gly	Met	Tyr	Asn	Gln	Arg	Tyr	His	
92					97					102					107	
tgc	cca	gtg	cct	aag	atc	ttt	tat	gtt	cag	ctc	act	gta	gga	aat	aat	626
Cys	Pro	Val	Pro	Lys	Ile	Phe	Tyr	Val	Gln	Leu	Thr	Val	Gly	Asn	Asn	
108					113					118					123	
gaa	ttt	ttt	ggg	gaa	gga	aag	act	cga	caa	gct	gct	aga	cac	aat	gct	674
Glu	Phe	Phe	Gly	Glu	Gly	Lys	Thr	Arg	Gln	Ala	Ala	Arg	His	Asn	Ala	
124					129					134					139	
gca	atg	aaa	gcc	ctc	caa	gca	ctg	cag	aat	gaa	cct	att	cca	gaa	aga	722
Ala	Met	Lys	Ala	Leu	Gln	Ala	Leu	Gln	Asn	Glu	Pro	Ile	Pro	Glu	Arg	
140					145					150					155	
tct	cct	cag	aat	ggg	gaa	tca	gga	aag	gat	atg	gat	gat	gac	aaa	gat	770
Ser	Pro	Gln	Asn	Gly	Glu	Ser	Gly	Lys	Asp	Met	Asp	Asp	Asp	Lys	Asp	
156					161					166					171	
gca	aat	aag	tct	gag	atc	agc	tta	gtg	ttt	gaa	att	gct	ctg	aag	cga	818
Ala	Asn	Lys	Ser	Glu	Ile	Ser	Leu	Val	Phe	Glu	Ile	Ala	Leu	Lys	Arg	
172					177					182					187	
aat	atg	cct	gtc	agt	ttt	gag	gtt	att	aaa	gaa	agt	gga	cca	cca	cat	866
Asn	Met	Pro	Val	Ser	Phe	Glu	Val	Ile	Lys	Glu	Ser	Gly	Pro	Pro	His	
188					193					198					203	
atg	aaa	agc	ttt	gtt	act	cga	gtg	tca	gta	gga	gag	ttc	tct	gca	gaa	914
Met	Lys	Ser	Phe	Val	Thr	Arg	Val	Ser	Val	Gly	Glu	Phe	Ser	Ala	Glu	
204					209					214					219	
gga	gaa	gga	aat	agc	aaa	aaa	ctc	tcc	aag	aag	cgc	gct	gcg	acc	acc	962
Gly	Glu	Gly	Asn	Ser	Lys	Lys	Leu	Ser	Lys	Lys	Arg	Ala	Ala	Thr	Thr	
220					225					230					235	
gtc	tta	cag	gag	ctt	aaa	aaa	ctt	cca	cct	ctt	cct	gtg	gtg	gaa	aag	1010
Val	Leu	Gln	Glu	Leu	Lys	Lys	Leu	Pro	Pro	Leu	Pro	Val	Val	Glu	Lys	
236					241					246					251	
cca	aaa	cta	ttt	ttt	aaa	aaa	cgc	cct	aaa	aca	ata	gta	aag	gcc	gga	1058
Pro	Lys	Leu	Phe	Phe	Lys	Lys	Arg	Pro	Lys	Thr	Ile	Val	Lys	Ala	Gly	
252					257					262					267	
cca	gaa	tat	ggc	caa	ggg	atg	aac	cct	att	agc	cgc	ctg	gcg	caa	att	1106
Pro	Glu	Tyr	Gly	Gln	Gly	Met	Asn	Pro	Ile	Ser	Arg	Leu	Ala	Gln	Ile	
268					273					278					283	
caa	cag	gcc	aaa	aag	gaa	aag	gag	ccg	gat	tat	gtt	ttg	ctt	tca	gaa	1154
Gln	Gln	Ala	Lys	Lys	Glu	Lys	Glu	Pro	Asp	Tyr	Val	Leu	Leu	Ser	Glu	
284					289					294					299	
aga	gga	atg	cct	cga	cgt	cga	gaa	ttt	gtg	atg	cag	gtg	aag	gta	ggc	1202
Arg	Gly	Met	Pro	Arg	Arg	Arg	Glu	Phe	Val	Met	Gln	Val	Lys	Val	Gly	
300					305					310					315	
aat	gaa	gtt	gct	aca	gga	aca	gga	cct	aat	aaa	aag	ata	gcc	aaa	aaa	1250
Asn	Glu	Val	Ala	Thr	Gly	Thr	Gly	Pro	Asn	Lys	Lys	Ile	Ala	Lys	Lys	

316	321	326	331	
aat gct gca gaa gca atg ctg tta caa ctt ggt tat aaa gca tcc act				1298
Asn Ala Ala Glu Ala Met Leu Leu Gln Leu Gly Tyr Lys Ala Ser Thr				
332	337	342	347	
aat ctt cag gat caa ctt gag aag aca ggg gaa aac aaa gga tgg agt				1346
Asn Leu Gln Asp Gln Leu Glu Lys Thr Gly Glu Asn Lys Gly Trp Ser				
348	353	358	363	
ggg cca aag cct ggg ttt cct gaa cca aca aat aat act cca aaa gga				1394
Gly Pro Lys Pro Gly Phe Pro Glu Pro Thr Asn Asn Thr Pro Lys Gly				
364	369	374	379	
att ctt cat ttg tct cct gat gtt tat caa gag atg gaa gcc agc cgc				1442
Ile Leu His Leu Ser Pro Asp Val Tyr Gln Glu Met Glu Ala Ser Arg				
380	385	390	395	
cac aaa gta atc tct ggc act act cta ggc tat ttg tca ccc aaa gat				1490
His Lys Val Ile Ser Gly Thr Thr Leu Gly Tyr Leu Ser Pro Lys Asp				
396	401	406	411	
atg aac caa cct tca agc tct ttc ttc agt ata tct ccc aca tcg aat				1538
Met Asn Gln Pro Ser Ser Ser Phe Phe Ser Ile Ser Pro Thr Ser Asn				
412	417	422	427	
agt tca gct aca att gcc agg gaa ctc ctt atg aat gga aca tct tct				1586
Ser Ser Ala Thr Ile Ala Arg Glu Leu Leu Met Asn Gly Thr Ser Ser				
428	433	438	443	
aca gct gaa gcc ata ggt tta aaa gga agt tct cct act ccc cct tgt				1634
Thr Ala Glu Ala Ile Gly Leu Lys Gly Ser Ser Pro Thr Pro Pro Cys				
444	449	454	459	
tct cca gta caa cct tca aaa caa ctg gaa tat tta gca agg att caa				1682
Ser Pro Val Gln Pro Ser Lys Gln Leu Glu Tyr Leu Ala Arg Ile Gln				
460	465	470	475	
ggc ttt cag gta tga attaaaagca aaaaaaaaaa a				1718
Gly Phe Gln Val *				
476				

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<220>
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 <222> (263)..(862)

<400> 162
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tgtgggcctc tcggggagcg agctgcgggg agcggcgcac tgggtacagg cgcgcgcttg 180

gctgtcgctt ctgccgtgt gtttgggagg actcgaactg gcgccaggaa atattaggaa 240

gctgtgattt tcaaagctaa tt atg aaa aca ttt atc att gga atc agt ggt 292
Met Lys Thr Phe Ile Ile Gly Ile Ser Gly
1 5

gtg aca aac agt ggc aaa aca aca ctg gct aag aat ttg cag aaa cac 340
Val Thr Asn Ser Gly Lys Thr Thr Leu Ala Lys Asn Leu Gln Lys His
11 16 21 26

ctc cca aat tgc agt gtc ata tct cag gat gat ttc ttc aag cca gag 388
Leu Pro Asn Cys Ser Val Ile Ser Gln Asp Asp Phe Phe Lys Pro Glu
27 32 37 42

tct gag ata gag aca gat aaa aat gga ttt ttg cag tac gat gtg ctt 436
Ser Glu Ile Glu Thr Asp Lys Asn Gly Phe Leu Gln Tyr Asp Val Leu
43 48 53 58

gaa gca ctt aac atg gaa aaa atg atg tca gcc att tcc tgc tgg atg 484
Glu Ala Leu Asn Met Glu Lys Met Met Ser Ala Ile Ser Cys Trp Met
59 64 69 74

gaa agc gca aga cac tct gtg gta tca aca gac cag gaa agt gct gag 532
Glu Ser Ala Arg His Ser Val Val Ser Thr Asp Gln Glu Ser Ala Glu
75 80 85 90

gaa att ccc att tta atc atc gaa ggt ttt ctt ctt ttt aat tat aag 580
Glu Ile Pro Ile Leu Ile Ile Glu Gly Phe Leu Leu Phe Asn Tyr Lys
91 96 101 106

ccc ctt gac act ata tgg aat aga agc tat ttc ctg act att cca tat 628
Pro Leu Asp Thr Ile Trp Asn Arg Ser Tyr Phe Leu Thr Ile Pro Tyr
107 112 117 122

gaa gaa tgt aaa agg agg agg agt aca agg gtc tat cag cct cca gac 676
Glu Glu Cys Lys Arg Arg Arg Ser Thr Arg Val Tyr Gln Pro Pro Asp
123 128 133 138

tct ccg gga tac ttt gat ggc cat gtg tgg ccc atg tat cta aag tac 724
Ser Pro Gly Tyr Phe Asp Gly His Val Trp Pro Met Tyr Leu Lys Tyr
139 144 149 154

aga caa gaa atg cag gac atc aca tgg gaa gtt gtg tac ctg gat gga 772
Arg Gln Glu Met Gln Asp Ile Thr Trp Glu Val Val Tyr Leu Asp Gly
155 160 165 170

aca aaa tct gaa gag gac ctc ttt ttg caa gta tat gaa gat cta ata 820
Thr Lys Ser Glu Glu Asp Leu Phe Leu Gln Val Tyr Glu Asp Leu Ile
171 176 181 186

caa gaa cta gca aag caa aag tgt ttg caa gtg aca gca taa agacgga 869
Gln Glu Leu Ala Lys Gln Lys Cys Leu Gln Val Thr Ala *

187

192

197

acacaacaaa tccttcctga agtgaattag gaaactccaa ggagtaattt aagaaccttc 929
 accaagatac aatgtatact gtggtacaat gacagccatt gtttcatatg tttgattttt 989
 attgcacatg gttttcccaa catgtggaac aataaatatc catgccaatg gacaggactg 1049
 taccttagca agttgctccc tctccaggga gcgcatagat acagcagagc tcacagttag 1109
 tcagaaagtc tccactttct gaacatagct ctataacaat gattgtcaaa cttttctaac 1169
 tggagctcag agtaagaaat aaagattaca tcacaatcca aaaaaaaaaa aa 1221

<210> 163

<211> 2925

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (178) .. (2433)

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 acgctgacctg gcgaacctg gtgttcaagt tccagaggaa cgggatgagc tcctgag 177
 atg gaa gat ctg tcc tct cca gac tcc acc ctt ctc caa ggg gga cat 225
 Met Glu Asp Leu Ser Ser Pro Asp Ser Thr Leu Leu Gln Gly Gly His
 1 5 10 15
 aat cta ctc tca tca gcc agt ttt cag gaa gcg gtg act ttc aag gat 273
 Asn Leu Leu Ser Ser Ala Ser Phe Gln Glu Ala Val Thr Phe Lys Asp
 17 22 27 32
 gtg ata gtg gac ttt acc cag gaa gaa tgg aaa cag ctg gac cct ggc 321
 Val Ile Val Asp Phe Thr Gln Glu Glu Trp Lys Gln Leu Asp Pro Gly
 33 38 43 48
 cag aga gat ttg ttc agg gat gtg aca ttg gaa aat tat aca cac ctg 369
 Gln Arg Asp Leu Phe Arg Asp Val Thr Leu Glu Asn Tyr Thr His Leu
 49 54 59 64
 gtc tct ata gga ctc caa gtt tct aaa cct gat gtg att tcc cag tta 417
 Val Ser Ile Gly Leu Gln Val Ser Lys Pro Asp Val Ile Ser Gln Leu
 65 70 75 80
 gag caa ggg aca gag cca tgg atc atg gag cca agc att cca gta ggt 465
 Glu Gln Gly Thr Glu Pro Trp Ile Met Glu Pro Ser Ile Pro Val Gly
 81 86 91 96
 acc tgt gca gac tgg gag aca aga ctt gaa aat agt gtg tca gcc cca 513

Thr	Cys	Ala	Asp	Trp	Glu	Thr	Arg	Leu	Glu	Asn	Ser	Val	Ser	Ala	Pro	
97					102					107					112	
gag	cct	gac	att	tct	gaa	gaa	gag	cta	tct	cca	gag	gta	ata	gtg	gaa	561
Glu	Pro	Asp	Ile	Ser	Glu	Glu	Glu	Leu	Ser	Pro	Glu	Val	Ile	Val	Glu	
113					118					123					128	
aaa	cac	aaa	aga	gat	gat	tct	tgg	agt	tcc	aac	ttg	cta	gaa	agt	tgg	609
Lys	His	Lys	Arg	Asp	Asp	Ser	Trp	Ser	Ser	Asn	Leu	Leu	Glu	Ser	Trp	
129					134					139					144	
gaa	tat	gaa	ggc	agt	tta	gag	aga	cag	cag	gca	aac	caa	cag	aca	ctg	657
Glu	Tyr	Glu	Gly	Ser	Leu	Glu	Arg	Gln	Gln	Ala	Asn	Gln	Gln	Thr	Leu	
145					150					155					160	
cca	aag	gaa	ata	aag	gta	acc	gaa	aag	aca	ata	ccc	agt	tgg	gaa	aaa	705
Pro	Lys	Glu	Ile	Lys	Val	Thr	Glu	Lys	Thr	Ile	Pro	Ser	Trp	Glu	Lys	
161					166					171					176	
ggc	cct	gta	aat	aat	gaa	ttt	ggg	aaa	agt	gtc	aat	gtg	agt	tca	aac	753
Gly	Pro	Val	Asn	Asn	Glu	Phe	Gly	Lys	Ser	Val	Asn	Val	Ser	Ser	Asn	
177					182					187					192	
ctt	gta	aca	caa	gaa	cca	tct	cca	gaa	gag	acc	tct	act	aaa	aga	agc	801
Leu	Val	Thr	Gln	Glu	Pro	Ser	Pro	Glu	Glu	Thr	Ser	Thr	Lys	Arg	Ser	
193					198					203					208	
atc	aaa	cag	aat	tca	aac	cca	gtt	aaa	aaa	gag	aaa	tct	tgt	aag	tgc	849
Ile	Lys	Gln	Asn	Ser	Asn	Pro	Val	Lys	Lys	Glu	Lys	Ser	Cys	Lys	Cys	
209					214					219					224	
aat	gaa	tgt	ggg	aaa	gcc	ttt	agt	tat	tgt	tca	gct	ctt	att	cgc	cat	897
Asn	Glu	Cys	Gly	Lys	Ala	Phe	Ser	Tyr	Cys	Ser	Ala	Leu	Ile	Arg	His	
225					230					235					240	
cag	aga	aca	cat	act	gga	gaa	aaa	ccc	tac	aaa	tgt	aat	gaa	tgt	gaa	945
Gln	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Asn	Glu	Cys	Glu	
241					246					251					256	
aaa	gcc	ttc	agc	cgg	agt	gaa	aac	ctt	ata	aac	cat	caa	aga	att	cat	993
Lys	Ala	Phe	Ser	Arg	Ser	Glu	Asn	Leu	Ile	Asn	His	Gln	Arg	Ile	His	
257					262					267					272	
act	gga	gat	aaa	cca	tat	aaa	tgt	gat	cag	tgt	gga	aaa	ggc	ttc	att	1041
Thr	Gly	Asp	Lys	Pro	Tyr	Lys	Cys	Asp	Gln	Cys	Gly	Lys	Gly	Phe	Ile	
273					278					283					288	
gag	ggt	cca	tct	ctt	act	caa	cat	caa	aga	att	cat	act	gga	gaa	aaa	1089
Glu	Gly	Pro	Ser	Leu	Thr	Gln	His	Gln	Arg	Ile	His	Thr	Gly	Glu	Lys	
289					294					299					304	
cca	tat	aaa	tgt	gat	gaa	tgt	ggg	aaa	gcc	ttt	agt	cag	agg	acc	cat	1137
Pro	Tyr	Lys	Cys	Asp	Glu	Cys	Gly	Lys	Ala	Phe	Ser	Gln	Arg	Thr	His	
305					310					315					320	
ctt	gtt	cag	cat	cag	aga	att	cat	act	ggc	gag	aag	cca	tac	act	tgt	1185
Leu	Val	Gln	His	Gln	Arg	Ile	His	Thr	Gly	Glu	Lys	Pro	Tyr	Thr	Cys	

321	326	331	336	
aat gag tgt gga aaa gcc ttt agc cag aga ggc cac ttt atg gaa cat				1233
Asn Glu Cys Gly Lys Ala Phe Ser Gln Arg Gly His Phe Met Glu His				
337	342	347	352	
cag aaa att cat acg gga gaa aaa cct ttt aaa tgt gat gaa tgt gat				1281
Gln Lys Ile His Thr Gly Glu Lys Pro Phe Lys Cys Asp Glu Cys Asp				
353	358	363	368	
aaa acc ttc acc agg agc aca cac ctt act caa cat caa aaa att cat				1329
Lys Thr Phe Thr Arg Ser Thr His Leu Thr Gln His Gln Lys Ile His				
369	374	379	384	
act gga gaa aaa acc tat aaa tgt aat gaa tgt gga aag gcc ttc aac				1377
Thr Gly Glu Lys Thr Tyr Lys Cys Asn Glu Cys Gly Lys Ala Phe Asn				
385	390	395	400	
ggg ccc tca act ttt atc cgt cat cat atg att cat act ggt gaa aaa				1425
Gly Pro Ser Thr Phe Ile Arg His His Met Ile His Thr Gly Glu Lys				
401	406	411	416	
ccg tac gaa tgc aat gaa tgt ggg aaa gcc ttc agc cag cac tca aac				1473
Pro Tyr Glu Cys Asn Glu Cys Gly Lys Ala Phe Ser Gln His Ser Asn				
417	422	427	432	
ctc act cag cat caa aaa act cat act ggg gag aaa ccc tat gat tgt				1521
Leu Thr Gln His Gln Lys Thr His Thr Gly Glu Lys Pro Tyr Asp Cys				
433	438	443	448	
gca gaa tgt gga aaa tct ttt agt tac tgg tca tcc ctt gct caa cac				1569
Ala Glu Cys Gly Lys Ser Phe Ser Tyr Trp Ser Ser Leu Ala Gln His				
449	454	459	464	
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Leu Lys Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Asn Glu Cys Gly				
465	470	475	480	
aag gcc ttc agt tac tgc tca tcc ctt act caa cat cgg aga att cac				1665
Lys Ala Phe Ser Tyr Cys Ser Ser Leu Thr Gln His Arg Arg Ile His				
481	486	491	496	
acg aga gaa aag ccc ttt gaa tgc agt gaa tgt gga aag gct ttc agt				1713
Thr Arg Glu Lys Pro Phe Glu Cys Ser Glu Cys Gly Lys Ala Phe Ser				
497	502	507	512	
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Tyr Leu Ser Asn Leu Asn Gln His Gln Lys Thr His Thr Gln Glu Lys				
513	518	523	528	
gct tat gaa tgt aaa gaa tgt ggg aaa gct ttt att cgg agt tca tct				1809
Ala Tyr Glu Cys Lys Glu Cys Gly Lys Ala Phe Ile Arg Ser Ser Ser				
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ctt gct aag cat gaa aga att cat act gga gag aaa ccc tat cag tgt				1857
Leu Ala Lys His Glu Arg Ile His Thr Gly Glu Lys Pro Tyr Gln Cys				
545	550	555	560	

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561 566 571 576

agg aag atc cat act gga gaa cga cct tac aag tgt aat gag tgt ggg 1953
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577 582 587 592

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593 598 603 608

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625 630 635 640

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Pro Tyr Gln Cys Asn Lys Cys Glu Lys Thr Phe Ser Gln Ser Ser His
641 646 651 656

cta act cag cat caa cga att cac act ggg gag aag ccc tat aag tgc 2193
Leu Thr Gln His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys
657 662 667 672

aat gaa tgt gac aaa gcc ttt agc cgg agc act cat ctg act gaa cat 2241
Asn Glu Cys Asp Lys Ala Phe Ser Arg Ser Thr His Leu Thr Glu His
673 678 683 688

cag aat act cat act gga gag aaa cct tat aac tgt aat gaa tgc aga 2289
Gln Asn Thr His Thr Gly Glu Lys Pro Tyr Asn Cys Asn Glu Cys Arg
689 694 699 704

aag act ttt agc cag agc aca tat ctc att cag cac cag aga att cat 2337
Lys Thr Phe Ser Gln Ser Thr Tyr Leu Ile Gln His Gln Arg Ile His
705 710 715 720

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Ser Gly Glu Lys Pro Phe Gly Cys Asn Asp Cys Gly Lys Ser Phe Arg
721 726 731 736

tat cgc tct gct ctc aac aaa cat cag aga ctg cat cct ggc ata tga 2433
Tyr Arg Ser Ala Leu Asn Lys His Gln Arg Leu His Pro Gly Ile *
737 742 747 752

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 Phe Ile Ser Asp Ile Arg Asn Cys Lys Ser Lys Glu Ala Glu Ile Lys
 16 21 26 31
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 Lys Ala Leu Asp Gly Tyr Ser Lys Lys Lys Tyr Val Cys Lys Leu Leu
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 Phe Ile Phe Leu Leu Gly His Asp Ile Asp Phe Gly His Met Glu Ala
 64 69 74 79
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 Val Asn Leu Leu Ser Ser Asn Arg Tyr Thr Glu Lys Gln Ile Gly Tyr
 80 85 90 95
 ctt ttc atc tct gtg ttg gtg aac tca aac agt gag ctg atc cgc ctg 516
 Leu Phe Ile Ser Val Leu Val Asn Ser Asn Ser Glu Leu Ile Arg Leu
 96 101 106 111

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336					341					346					351		
atg	tgc	acg	ctg	gcc	agc	tct	gag	ttc	tcc	cat	gag	gct	gtc	aag	acg	1284	
Met	Cys	Thr	Leu	Ala	Ser	Ser	Glu	Phe	Ser	His	Glu	Ala	Val	Lys	Thr		
352					357					362					367		
cac	atc	gag	acg	gtc	atc	aac	gcc	ctg	aag	act	gag	cgg	gac	gtg	agc	1332	
His	Ile	Glu	Thr	Val	Ile	Asn	Ala	Leu	Lys	Thr	Glu	Arg	Asp	Val	Ser		
368					373					378					383		
gtg	cgg	cag	cgg	gcc	gtg	gac	ctc	ctc	tac	gcc	atg	tgc	gac	cgc	agc	1380	
Val	Arg	Gln	Arg	Ala	Val	Asp	Leu	Leu	Tyr	Ala	Met	Cys	Asp	Arg	Ser		
384					389					394					399		
aac	gcc	cca	cag	atc	gtg	gcc	gag	atg	ctg	agc	tat	ctg	gag	aca	gct	1428	
Asn	Ala	Pro	Gln	Ile	Val	Ala	Glu	Met	Leu	Ser	Tyr	Leu	Glu	Thr	Ala		
400					405					410					415		
gac	tac	tcc	atc	cga	gaa	gag	att	gtg	ctg	aag	gtc	gcc	atc	ctg	gct	1476	
Asp	Tyr	Ser	Ile	Arg	Glu	Glu	Ile	Val	Leu	Lys	Val	Ala	Ile	Leu	Ala		
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Glu	Lys	Tyr	Ala	Val	Asp	Tyr	Thr	Trp	Tyr	Val	Asp	Thr	Ile	Leu	Asn		
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Leu	Ile	Arg	Ile	Ala	Gly	Asp	Tyr	Val	Ser	Glu	Glu	Val	Trp	Tyr	Arg		
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Lys	Thr	Val	Phe	Glu	Ala	Leu	Gln	Ala	Pro	Ala	Cys	His	Glu	Asn	Leu		
480					485					490					495		
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Val	Lys	Val	Gly	Gly	Tyr	Ile	Leu	Gly	Glu	Phe	Gly	Asn	Leu	Ile	Ala		
496					501					506					511		
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Gly	Asp	Pro	Arg	Ser	Ser	Pro	Leu	Ile	Gln	Phe	His	Leu	Leu	His	Ser		
512					517					522					527		
aag	ttc	cac	ctg	tgc	agc	gtc	ccc	acc	cgc	gcg	ctg	ctc	ctg	tcc	acc	1812	
Lys	Phe	His	Leu	Cys	Ser	Val	Pro	Thr	Arg	Ala	Leu	Leu	Leu	Ser	Thr		
528					533					538					543		
tac	atc	aag	ttc	gtg	aac	ctc	ttc	ccg	gag	gtg	aag	ccc	acc	atc	cag	1860	
Tyr	Ile	Lys	Phe	Val	Asn	Leu	Phe	Pro	Glu	Val	Lys	Pro	Thr	Ile	Gln		
544					549					554					559		
gac	gtg	ctg	cgc	agc	gac	agc	cag	ctc	agg	aac	gca	gac	gtg	gag	ctg	1908	
Asp	Val	Leu	Arg	Ser	Asp	Ser	Gln	Leu	Arg	Asn	Ala	Asp	Val	Glu	Leu		

560	565	570	575	
cag cag cgt gct gtg	gag tac ctg cgg ctc	agc acc gtg gcc agc acc		1956
Gln Gln Arg Ala Val	Glu Tyr Leu Arg Leu	Ser Thr Val Ala Ser Thr		
576	581	586	591	
gac att ctg gcg acc	gtg ctg gag gag atg	ccc cca ttc ccg gag cgg		2004
Asp Ile Leu Ala Thr	Val Leu Glu Glu Met	Pro Pro Phe Pro Glu Arg		
592	597	602	607	
gag tcc tcc atc ttg	gca aag ctc aag aag aag	ggc ccc agc acg		2052
Glu Ser Ser Ile Leu	Ala Lys Leu Lys Lys Lys	Lys Lys Gly Pro Ser Thr		
608	613	618	623	
gtg aca gac ctg gag	gac acc aag cgg gac	agg agt gtg gac gtg aac		2100
Val Thr Asp Leu Glu	Asp Thr Lys Arg Asp	Arg Ser Val Asp Val Asn		
624	629	634	639	
ggg ggt cct gag cct	gcc cca gcc agt acc agc	gcc gtg tct acg cct		2148
Gly Gly Pro Glu Pro	Ala Pro Ala Ser Thr	Ser Ala Val Ser Thr Pro		
640	645	650	655	
tct ccg tcg gca gac	ctg ctg ggt ctc ggg	gct gcc ccc cct gcc ccc		2196
Ser Pro Ser Ala Asp	Leu Leu Gly Leu Gly	Ala Ala Pro Pro Ala Pro		
656	661	666	671	
gcg ggc ccc cca ccc	tcc tcc ggc ggc agc	ggg ctg ctc gtg gac gtg		2244
Ala Gly Pro Pro Pro	Ser Ser Gly Gly Ser	Gly Leu Leu Val Asp Val		
672	677	682	687	
ttc tca gac tcg gcc	tct gtg gtc gcg cct	ctc gct cct ggc tcc gaa		2292
Phe Ser Asp Ser Ala	Ser Val Val Ala Pro	Leu Ala Pro Gly Ser Glu		
688	693	698	703	
gac aac ttt gcc agg	ttt gtt tgt aaa aac	aat ggt gtg ttg ttt gaa		2340
Asp Asn Phe Ala Arg	Phe Val Cys Lys Asn	Asn Gly Val Leu Phe Glu		
704	709	714	719	
aac cag ctg ctt caa	att gga ctt aag tct	gaa ttt cgg cag aat tta		2388
Asn Gln Leu Leu Gln	Ile Gly Leu Lys Ser	Glu Phe Arg Gln Asn Leu		
720	725	730	735	
ggg cgg atg ttt atc	ttt tat ggt aat aag	acc tcc acg cag ttc cta		2436
Gly Arg Met Phe Ile	Phe Tyr Gly Asn Lys	Thr Ser Thr Gln Phe Leu		
736	741	746	751	
aac ttt acc cca aca	cta atc tgt tca gac	gac ctt cag cct aac ctg		2484
Asn Phe Thr Pro Thr	Leu Ile Cys Ser Asp	Asp Leu Gln Pro Asn Leu		
752	757	762	767	
aac ctg cag acc aag	ccc gtg gac ccg acc	gtg gag ggg ggc gcg cag		2532
Asn Leu Gln Thr Lys	Pro Val Asp Pro Thr	Val Glu Gly Gly Ala Gln		
768	773	778	783	
gtg cag cag gtg gtc	aac ata gag tgc gtg	tcc gac ttc acg gag gcg		2580
Val Gln Gln Val Val	Asn Ile Glu Cys Val	Ser Asp Phe Thr Glu Ala		
784	789	794	799	

cca gtc ctc aac att cag ttc agg tat ggg ggc acc ttc cag aac gtg	2628
Pro Val Leu Asn Ile Gln Phe Arg Tyr Gly Gly Thr Phe Gln Asn Val	
800 805 810 815	

tct gtg cag ctg ccc atc act ctc aac aaa ttc ttc cag ccg aca gaa	2676
Ser Val Gln Leu Pro Ile Thr Leu Asn Lys Phe Phe Gln Pro Thr Glu	
816 821 826 831	

atg gct tct cag gat ttc ttt caa cgt tgg aag cag ttg agc aat cca	2724
Met Ala Ser Gln Asp Phe Phe Gln Arg Trp Lys Gln Leu Ser Asn Pro	
832 837 842 847	

cag cag gaa gtg cag aac atc ttc aaa gca aag cac cca atg gac aca	2772
Gln Gln Glu Val Gln Asn Ile Phe Lys Ala Lys His Pro Met Asp Thr	
848 853 858 863	

gaa gtc acc aaa gcc aag atc att gga ttt ggt tct gca ctt ctt gaa	2820
Glu Val Thr Lys Ala Lys Ile Ile Gly Phe Gly Ser Ala Leu Leu Glu	
864 869 874 879	

gaa gtt gat cct aat cct gcg aat ttc gtg gga gct gga atc atc cac	2868
Glu Val Asp Pro Asn Pro Ala Asn Phe Val Gly Ala Gly Ile Ile His	
880 885 890 895	

acg aaa acc acc cag att gga tgc ctg ctg cgc ttg gag ccg aac ctg	2916
Thr Lys Thr Thr Gln Ile Gly Cys Leu Leu Arg Leu Glu Pro Asn Leu	
896 901 906 911	

caa gcc cag atg tac cgg ctc acg ctg cgc aca agt aag gaa gcc gtt	2964
Gln Ala Gln Met Tyr Arg Leu Thr Leu Arg Thr Ser Lys Glu Ala Val	
912 917 922 927	

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Ser Gln Arg Leu Cys Glu Leu Leu Ser Ala Gln Phe *	
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Glu Ala Leu Gln Thr Ile His Lys Gln Met Asp Asp Asp Lys Asp Gly				
17	22	27	32	
gga att gaa gta gag gaa agt gat gaa ttc atc aga gaa gat atg aaa				261
Gly Ile Glu Val Glu Glu Ser Asp Glu Phe Ile Arg Glu Asp Met Lys				
33	38	43	48	
tat aaa gat gct act aat aaa cac agc cat ctg cac aga gaa gat aaa				309
Tyr Lys Asp Ala Thr Asn Lys His Ser His Leu His Arg Glu Asp Lys				
49	54	59	64	
cat ata acg att gag gat tta tgg aaa cga tgg aaa aca tca gaa gtt				357
His Ile Thr Ile Glu Asp Leu Trp Lys Arg Trp Lys Thr Ser Glu Val				
65	70	75	80	
cat aat tgg acc ctt gaa gac act ctt cag tgg ttg ata gag ttt gtt				405
His Asn Trp Thr Leu Glu Asp Thr Leu Gln Trp Leu Ile Glu Phe Val				
81	86	91	96	
gaa cta ccc caa tat gag aag aat ttt aga gac aac aat gtc aaa gga				453
Glu Leu Pro Gln Tyr Glu Lys Asn Phe Arg Asp Asn Asn Val Lys Gly				
97	102	107	112	
acg aca ctt ccc agg ata gca gtg cac gaa cct tca ttt atg atc tcc				501
Thr Thr Leu Pro Arg Ile Ala Val His Glu Pro Ser Phe Met Ile Ser				
113	118	123	128	
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Gln Leu Lys Ile Ser Asp Arg Ser His Arg Gln Lys Leu Gln Leu Lys				
129	134	139	144	
gca ttg gat gtg gtt ttg ttt gga cct cta aca cgc cca cct cat aac				597
Ala Leu Asp Val Val Leu Phe Gly Pro Leu Thr Arg Pro Pro His Asn				
145	150	155	160	
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Trp Met Lys Asp Phe Ile Leu Thr Val Ser Ile Val Ile Gly Val Gly				
161	166	171	176	
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Gly Cys Trp Phe Ala Tyr Thr Gln Asn Lys Thr Ser Lys Glu His Val				
177	182	187	192	
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Ala Lys Met Met Lys Asp Leu Glu Ser Leu Gln Thr Ala Glu Gln Ser				
193	198	203	208	
cta atg gac tta caa gag agg ctt gaa aag gca cag gaa gaa aac aga				789
Leu Met Asp Leu Gln Glu Arg Leu Glu Lys Ala Gln Glu Glu Asn Arg				
209	214	219	224	
aat gtt gct gta gaa aag caa aat tta gag cgc aaa atg atg gat gaa				837
Asn Val Ala Val Glu Lys Gln Asn Leu Glu Arg Lys Met Met Asp Glu				
225	230	235	240	

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Thr Pro His Ser Leu Pro Ser Pro Asp Pro Asp Ile Leu Ser Val Ser	
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Gly Ser Tyr Ser Glu Tyr Glu Arg Lys His Trp Glu Val Ser Met Pro	
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Ile Pro Val Pro Lys Pro Arg His Thr Ser Cys Ser Ser Ala Gly Asn	
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Cys Phe Ser Ser Ile His Val Lys Thr Asp Lys His Ala Gln Arg Phe
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Leu Ser Arg Thr Phe Ala Leu Ala Glu Leu Arg Lys Ser Trp Tyr Ser
33 38 43 48

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Thr His Ser Leu Val Gly Asp Lys Asn Ile Ile Leu Met Gly Pro Pro
49 54 59 64

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Cys Cys Val Ile Asp Val Asp Asp Asp Ile Leu Glu Lys Thr Trp Asn
81 86 91 96

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Met Ser Val Ser Glu Lys Leu Gln Asp Val Gly Asn Glu Gln Phe Leu
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Pro Glu Glu Val Ala Asp Lys Val Leu Asn Ala Ile Lys Arg Tyr Gln
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Asp Val Asp Ser Glu Thr Phe Ile Ser Thr Arg His Val Trp Pro Glu	
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Asp Cys Glu Gln Lys Val Ser Ala Lys Phe Phe Ser Glu Ala Val Ile	
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Pro Lys Leu Ser Cys Gly Glu Trp Lys Ser Leu Val Gly Ala Thr Tyr	
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Ile Pro Ala Ala Arg Leu Gly Glu Met Ile Glu Thr Ala Tyr Gly Glu	
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Asn Phe Ala Cys Ser Lys Ile Ala Pro Val Arg His Leu Ser Gly Asn	
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Leu Ser Leu Gln Leu Met Pro His Ile Phe Ala His Cys Ile Pro Pro	
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Ser Cys Asn Tyr Met Ile Leu Val Ala Thr Ser Gly Asp Thr Gly Ser	
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Ile Ala Val Val Ala Phe Phe Pro Glu Asn Gly Val Ser Asp Phe Gln	
401 406 411 416	
aaa gca caa ata att ggc agt cag aga gaa aat gga tgg gca gtg ggt	1296
Lys Ala Gln Ile Ile Gly Ser Gln Arg Glu Asn Gly Trp Ala Val Gly	
417 422 427 432	
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Val Glu Ser Asp Phe Asp Phe Cys Gln Thr Ala Ile Lys Arg Ile Phe	
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Asn Asp Ser Asp Phe Thr Gly Phe Leu Thr Val Glu Tyr Gly Thr Ile	
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Ser Phe Gly Ser Pro Val Asp Val Cys Ile Pro Thr Gly Asn Phe Gly	
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545 550 555 560	
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His Leu Met Ala Asn Lys Asp Gly Gln Leu Met Thr Glu Leu Phe Asn	
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Arg Leu Glu Ser Gln His His Phe Gln Ile Glu Lys Ala Leu Val Glu	
593 598 603 608	
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Lys Leu Gln Gln Asp Phe Val Ala Asp Trp Cys Ser Glu Gly Glu Cys	
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Leu Ala Ala Ile Asn Ser Thr Tyr Asn Thr Ser Gly Tyr Ile Leu Asp	
625 630 635 640	
cca cac act gct gtt gca aaa gtg gtt gca gat agg gtg caa gac aaa	1968
Pro His Thr Ala Val Ala Lys Val Val Ala Asp Arg Val Gln Asp Lys	
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cct gct atc atg cag gct tta aag att aaa gaa atc aat gag act tca	2064
Pro Ala Ile Met Gln Ala Leu Lys Ile Lys Glu Ile Asn Glu Thr Ser	

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Ser Ser Gln Leu Tyr Leu Leu Gly Ser Tyr Asn Ala Leu Pro Pro Leu				
689	694	699	704	
cat gag gct tta tta gag aga aca aaa cag caa gag aag atg gag tac				2160
His Glu Ala Leu Leu Glu Arg Thr Lys Gln Gln Glu Lys Met Glu Tyr				
705	710	715	720	
cag gtc tgt gca gct gat atg aat gtc ttg aag agt cat gtg gaa caa				2208
Gln Val Cys Ala Ala Asp Met Asn Val Leu Lys Ser His Val Glu Gln				
721	726	731	736	
ctt gtc caa aat caa ttc ata tga aagctttcag agtaaatttt tttttctagc				2262
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Asp His Asn Arg Gln Arg Gly Cys Cys Gly Ser Leu Ala Asp Tyr Leu		
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Thr Ser Ala Lys Phe Leu Leu Tyr Leu Gly His Ser Leu Ser Thr Trp		
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Gly Asp Arg Met Trp His Phe Ala Val Ser Val Phe Leu Val Glu Leu		

546
594
642
690
738
786
834
882
930
978
1026
1074
1122
1170

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Tyr Gly Asn Ser Leu Leu Leu Thr Ala Val Tyr Gly Leu Val Val Ala				
54	59	64	69	
ggg tct gtt ctg gtc ctg gga gcc atc atc ggt gac tgg gtg gac aag				594
Gly Ser Val Leu Val Leu Gly Ala Ile Ile Gly Asp Trp Val Asp Lys				
70	75	80	85	
aat gct aga ctt aaa gtg gcc cag acc tcg ctg gtg gta cag aat gtt				642
Asn Ala Arg Leu Lys Val Ala Gln Thr Ser Leu Val Val Gln Asn Val				
86	91	96	101	
tca gtc atc ctg tgt gga atc atc ctg atg atg gtt ttc tta cat aaa				690
Ser Val Ile Leu Cys Gly Ile Ile Leu Met Met Val Phe Leu His Lys				
102	107	112	117	
cat gag ctt ctg acc atg tac cat gga tgg gtt ctc act tcc tgc tat				738
His Glu Leu Leu Thr Met Tyr His Gly Trp Val Leu Thr Ser Cys Tyr				
118	123	128	133	
atc ctg atc atc act att gca aat att gca aat ttg gcc agt act gct				786
Ile Leu Ile Ile Thr Ile Ala Asn Ile Ala Asn Leu Ala Ser Thr Ala				
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act gca atc aca atc caa agg gat tgg att gtt gtt gtt gca gga gaa				834
Thr Ala Ile Thr Ile Gln Arg Asp Trp Ile Val Val Val Ala Gly Glu				
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gac aga agc aaa cta gca aat atg aat gcc aca ata cga agg att gac				882
Asp Arg Ser Lys Leu Ala Asn Met Asn Ala Thr Ile Arg Arg Ile Asp				
166	171	176	181	
cag tta acc aac atc tta gcc ccc atg gct gtt ggc cag att atg aca				930
Gln Leu Thr Asn Ile Leu Ala Pro Met Ala Val Gly Gln Ile Met Thr				
182	187	192	197	
ttt ggc tcc cca gtc atc ggc tgt ggc ttt att tcg gga tgg aac ttg				978
Phe Gly Ser Pro Val Ile Gly Cys Gly Phe Ile Ser Gly Trp Asn Leu				
198	203	208	213	
gta tcc atg tgc gtg gag tac gtt ctg ctc tgg aag gtt tac cag aaa				1026
Val Ser Met Cys Val Glu Tyr Val Leu Leu Trp Lys Val Tyr Gln Lys				
214	219	224	229	
acc cca gct cta gct gtg aaa gct ggt ctt aaa gaa gag gaa act gaa				1074
Thr Pro Ala Leu Ala Val Lys Ala Gly Leu Lys Glu Glu Glu Thr Glu				
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Leu Lys Gln Leu Asn Leu His Lys Asp Thr Glu Pro Lys Pro Leu Glu				
246	251	256	261	
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262	267	272	277	

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518 523 528 533	

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Gly His Ile Met Tyr Phe Arg Phe Ala Gln Asn Thr Leu Gly Asn Lys	
534 539 544 549	

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 Pro Gly Leu Ile Ser Glu Leu Lys Leu Ala Val Pro Trp Gly His Ile
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 Ala Ala Lys Ala Trp Gly Ser Leu Gln Gly Pro Pro Val Leu Cys Leu
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 His Gly Trp Leu Asp Asn Ala Asn Ser Phe Asp Arg Leu Ile Pro Leu
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 Leu Pro Gln Asp Phe Tyr Tyr Val Ala Met Asp Phe Gly Gly His Gly
 55 60 65 70
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Gly Gly Val Gly Ser Arg Lys Gln Arg Trp Pro Glu Ser Gly Ala Trp
 119 124 129 134

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 Ala Leu Ala Pro Gly Leu Pro Ala Ile His Gly Arg Ser Trp Glu Ser
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tgtgagaccc tggccccgcc ccgcgggcca gccccgcca ccgagccccg ccctcgccag 180

gaccaacctc gcggggattt tggctgaaaa tgaaaccggg taacggctcc tgggcctctc 240

ccgggtcaag ggtctccagg tcccgctgcc tcggcggtga tctcggaccc agagactcgg 300

ggagaccggg gcggtccgtg gggg atg tgg agg ggt agt gac ctg cgc ccc 351

Met Trp Arg Gly Ser Asp Leu Arg Pro

1

5

cgg ccg gtg tca ctc aca ggc ctc act ctg gtt gta gta gcc gct cag	399
Arg Pro Val Ser Leu Thr Gly Leu Thr Leu Val Val Ala Ala Gln	
10 15 20 25	
ggg ccg cag gtt cac tcg gta aaa ctg tgc ttt ggc ctt ggc ggt ccc	447
Gly Pro Gln Val His Ser Val Lys Leu Cys Phe Gly Leu Gly Gly Pro	
26 31 36 41	
tgt ctc ctc ttc cca ata ttc cgg ccc ctc ctg ctc cat cca cgg cgc	495
Cys Leu Leu Phe Pro Ile Phe Arg Pro Leu Leu Leu His Pro Arg Arg	
42 47 52 57	
ccg cgg ctc cat cct ggg act cgt ggc gtc gct gtc gag ccg cac gca	543
Pro Arg Leu His Pro Gly Thr Arg Gly Val Ala Val Glu Pro His Ala	
58 63 68 73	
ctg cgt gtc gtc cac gtc gcc cac gga gag gaa gcg ggg atc cgc gcg	591
Leu Arg Val Val His Val Ala His Gly Glu Glu Ala Gly Ile Arg Ala	
74 79 84 89	
gcc ggg ccg gga cat ggt ggt gtg gaa ata cct caa gga gta agc ctg	639
Ala Gly Pro Gly His Gly Gly Val Glu Ile Pro Gln Gly Val Ser Leu	
90 95 100 105	
gga gca agg agg ggg ctg aga ccc tcc cga ccc tcc tcc cgg cac cgc	687
Gly Ala Arg Arg Gly Leu Arg Pro Ser Arg Pro Ser Ser Arg His Arg	
106 111 116 121	
aac cgg gtt cct gcg ccc ccg ccg ggc agg ccc cta gct act ccc cac	735
Asn Arg Val Pro Ala Pro Pro Pro Gly Arg Pro Leu Ala Thr Pro His	
122 127 132 137	
aga cgc cgt ttc cct ccc gac ccc gca ctc acc tgc cca ggt ctg ggt	783
Arg Arg Arg Phe Pro Pro Asp Pro Ala Leu Thr Cys Pro Gly Leu Gly	
138 143 148 153	
cag gac cag ggc ccc cga gag cag cag aag cag ggt tcg ggg cgc cat	831
Gln Asp Gln Gly Pro Arg Glu Gln Gln Lys Gln Gly Ser Gly Arg His	
154 159 164 169	
gac acc atc ctc ggc gac tgg gaa gaa tcg gag tcc cgg tgg gtg cgt	879
Asp Thr Ile Leu Gly Asp Trp Glu Glu Ser Glu Ser Arg Trp Val Arg	
170 175 180 185	
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Gly Asn Phe Arg Thr Gly Thr Ala Ala Thr Leu Ile Gly Phe Ser Arg	
186 191 196 201	
aac ccg aca ctc aat ggg agt gag aac tgg ggc agc ccg gtg agt acc	975
Asn Pro Thr Leu Asn Gly Ser Glu Asn Trp Gly Ser Pro Val Ser Thr	
202 207 212 217	
cag gaa gaa gga ccc gac aca ggt tgg gag agg gag aag aga aac cct	1023
Gln Glu Glu Gly Pro Asp Thr Gly Trp Glu Arg Glu Lys Arg Asn Pro	
218 223 228 233	

gca aag atg ggg aat gcc cag cgc tgg gcc tcc cca atc cat aca ccg	1071
Ala Lys Met Gly Asn Ala Gln Arg Trp Ala Ser Pro Ile His Thr Pro	
234 239 244 249	
cct ttg ggg cct gag atc ctg aga gcc acg cct gag gcc ctg gga ctt	1119
Pro Leu Gly Pro Glu Ile Leu Arg Ala Thr Pro Glu Ala Leu Gly Leu	
250 255 260 265	
cgc cct gac ccc gct act tct gtg cca agc gct ctg tct caa tgt ttc	1167
Arg Pro Asp Pro Ala Thr Ser Val Pro Ser Ala Leu Ser Gln Cys Phe	
266 271 276 281	
cct gag tct tgg ccc agg agc tgt ctg aga aac cag gga gaa acc ctc	1215
Pro Glu Ser Trp Pro Arg Ser Cys Leu Arg Asn Gln Gly Glu Thr Leu	
282 287 292 297	
gga atg ggc ccc gtc cct ctc tct tca ctt tgc atc acg gaa tcc ccg	1263
Gly Met Gly Pro Val Pro Leu Ser Ser Leu Cys Ile Thr Glu Ser Pro	
298 303 308 313	
tcc cag aac tgg act ccc tgc ctc cta ctc ctt acc tgt ccc cgt gga	1311
Ser Gln Asn Trp Thr Pro Cys Leu Leu Leu Leu Thr Cys Pro Arg Gly	
314 319 324 329	
ctc ttc tag aagaaaa atcaccocag ggagcttggt gccagagagt gagcttgccc	1367
Leu Phe *	
330	
tggaatgga ggtgtagaga cagggttttt tgttggtgtt gtttgtttgt tttttaaatc	1427
tggaaggtt gtgcctgagt gcatgagata gaatagagac cagtttgctt tttgtttatt	1487
aactacagtg ggtagcagaa tcttggtaac tcctaatagat caggaatcta atcggccaaa	1547
aatgtgactt tgggtcccttg acatataaat gtgtctaaaa gcattacaac aggaatcaca	1607
aagctcctaa gtttcacttt cccagacaat gtatctgtga ctcccgttg tagtatttta	1667
aatttacctt cattccatag ccctgagttt ctgtgtgagt ccaggacatc tcctaataca	1727
aggtagccac tgtgttacta tatgttgtaa ccaggagcca gtacggactt tattcatctc	1787
acagtggcaa gcactcaatg cagtcacaat gccctcacc agtgctcatg cactgcctgt	1847
ttttaggaag tatccacttc taagtgttgt gtatatattta tatgaacact tagtattttt	1907
taaacctgat taacataaaa aaattagttt ttaggcagac ccacataagg tattaaggc	1967
caactgcaaa gatcaccctg caaggctctg tagattgatg tattaataata tataaaacaa	2027
tgtgttttaa aaaaaaaaaa	2046

<210> 170

<211> 2062

<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (785)..(994)

<400> 170

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gtttctaaga aaagcaactg aaaaggtcgt aataccgccc ctgagaaaaa aggagcagcg	180
ctaaataatc gagaaaatgc ctctcttga aacggatata gagatggaaa caagatataa	240
gaaggattga gaatcatata atacaggagc ttaaaccact atgcgcgatg ataaagaggg	300
tactattaga gcgcttgaa aataccagga agttgagaga gttaacagaa gggcgcaacgc	360
tggattggcc acaaaatcga attactgaag taagtgcaaa acgacaaatt gtcacagaat	420
acagagaaaa ggggaaaaga aattaagagg agaaaaagag agatctagag ggccggtcca	480
ggagatacaa tctatgcata ataggaatac ctgaaactga ggacagagca agtggagctg	540
aaacaataaa ggatctactt gaaaaaat tccagaattg aagaacgaac tagatctaca	600
aatggaaaag gctcatagga tacctttaa gtttaatgaa aagaaagcag catctagaca	660
tatccgggtg acgtttttga atttcaaaga cgaaacattt tacaagcatc cagtcagaga	720
aagcaggtta cttacaaagg ggcaaaagtc aggctgacct cagatttttc tcttgaatt	780
ctaa atg cca gaa gac agt gga aca ata tct aga gtg tta agg gaa aat	829
Met Pro Glu Asp Ser Gly Thr Ile Ser Arg Val Leu Arg Glu Asn	
1 5 10	
aat ttt gag cca aga att ata tac tct gcc aag tta tca ttt ctt tac	877
Asn Phe Glu Pro Arg Ile Ile Tyr Ser Ala Lys Leu Ser Phe Leu Tyr	
16 21 26 31	
aaa gga aac tgg aag aca ttc tta gat ata cag ggg tta gga aag tat	925
Lys Gly Asn Trp Lys Thr Phe Leu Asp Ile Gln Gly Leu Gly Lys Tyr	
32 37 42 47	
atc aac caa gaa ctt tcc ctg aaa att ttg ctg aag gat tta ctg cag	973
Ile Asn Gln Glu Leu Ser Leu Lys Ile Leu Leu Lys Asp Leu Leu Gln	
48 53 58 63	
cta aca gag aac ctg aat taa aa taagaatagg gaggcaattg tatgaaagaa	1026
Leu Thr Glu Asn Leu Asn *	
64 69	
ctgatggtat gcattaaaac tagttaagga gcattaagtt taaattgtta tgtatagggc	1086
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aactggaagg gcataccaca tgttcaatat attggacaaa tactgtttta tttttagcat	1206
gtagtattgt agatacaaat acgcatgttc ttaagctaaa cctaagtaaa agggccttgt	1266
cactgtagat ttgacaaata acattctaaa tgtcaaatct gacaattgga aaacagtaca	1326
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tactgatact gtaaagaaac ttccaaatca ctggtttggg agggggtgga tacatcctca	1446
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atatggtaaa taatatgaca ttaatatata aaatatatgt tccagatctt gatgtgggtg	1926
atagttttac ttatgtacat cgatatacat ctatttaaaa acatgtacat ttaaattggt	1986
gcattttatg tattttaaata ttattgagta atccttctgt atgtattatt aaagagaata	2046
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<210> 171
 <211> 2809
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1936)..(2364)

<400> 171	
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cctcggcaaa ggcttaggga caagagacca gcagcctgaa ctggctgggg catccggaag	180
gcttagatct tgtggccaag agttcagacc gtggcgaagt ggagagtga atgcagttgg	240
atggcgggtga ctgcgtggtc ctgcaaccct ggttccagtc tggcaagcat ttagacctg	300
gctgctgaag actgacgggg ccaggggtcc gctgccccca ccgccatcac cacctcgga	360

cccagggtaa cgctgtcagt ctttggacca acctcgctgt gcctaacaag aattccagaa 420
gtcaccatc cgaaaggcac tggcccatga cactctccac ttccaatctt aaatctttta 480
cttcatacct tgtctcagat ctctcctggt accccttccc cagccctta gataatccat 540
ctcaattcct catgctaatt gaggagctat ggctgcaagg caccttccag gatttcacac 600
ctacacaaat ctcttttttc tctttttgcc ttctctgctt atgggatatt ctgagtcccc 660
acccccaatc actgacagct gggccccctt catcagctc acacaccagg tattaagtca 720
gtcacaatct cccctctcct ctaactgctg gatttgtctt tctacacaca ccaatgatt 780
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tgggctctac atctcatcac cctgctaaca ggattaggca tcaactgctgc acttggcact 1860
ggaatagcag gcataaccac ctcaatcacc tcataccaaa cactattcac aaccctttct 1920
aacaccgtag aagat atg cac act tcc att acc agt ctc caa cga caa tta 1971
Met His Thr Ser Ile Thr Ser Leu Gln Arg Gln Leu
1 5 10

gac ttc ctc gtg gga gtc atc ctt caa aac tgg aga gtc ctg gac ctc	2019
Asp Phe Leu Val Gly Val Ile Leu Gln Asn Trp Arg Val Leu Asp Leu	
13 18 23 28	
cta acc act gag aaa ggg ggt acc tgc ata tac ctc cag gaa gaa tgc	2067
Leu Thr Thr Glu Lys Gly Gly Thr Cys Ile Tyr Leu Gln Glu Glu Cys	
29 34 39 44	
tgt ttc tgt gtt aat gaa tct ggc att gtt cat atc gca gtt cgt agg	2115
Cys Phe Cys Val Asn Glu Ser Gly Ile Val His Ile Ala Val Arg Arg	
45 50 55 60	
ctt cat gac agg gct gca gag ctt aga cat caa gtc gct gac tcc tgg	2163
Leu His Asp Arg Ala Ala Glu Leu Arg His Gln Val Ala Asp Ser Trp	
61 66 71 76	
tgg caa gga tca tcc ctt cta aga tgg ata ccc tgg gtt gcc ccc ttc	2211
Trp Gln Gly Ser Ser Leu Leu Arg Trp Ile Pro Trp Val Ala Pro Phe	
77 82 87 92	
cta gga ccc ctg atc ttc ctc ttc ctg tta cta atg att ggg cca tgc	2259
Leu Gly Pro Leu Ile Phe Leu Phe Leu Leu Leu Met Ile Gly Pro Cys	
93 98 103 108	
ata ttt aac ctt gta tcc cgc ttc att tcc caa agg ctg aat tgt ttt	2307
Ile Phe Asn Leu Val Ser Arg Phe Ile Ser Gln Arg Leu Asn Cys Phe	
109 114 119 124	
atc cag gca agc atg caa aaa cac att gat aat ata ttt cac ctt tgc	2355
Ile Gln Ala Ser Met Gln Lys His Ile Asp Asn Ile Phe His Leu Cys	
125 130 135 140	
cac gtc taa taccaga gcctacgagg aaaccattcg gaagctccag aaccaggcc	2411
His Val *	
141	
ctaatacaca cgccttatc cagcaggaag cagccagatg atcaacgacg ccctttttcc	2471
tttttataact aaagtaagaa ataagaatgt tagcccaaac tgcactattt tgcagacccc	2531
taccatttta caaactggtc agagtggaaa attccaccag ggcttgagct gtgagaaaca	2591
tcctgtcagg cagggtcccag gcctaacccc tggctgcact aaattccttc attatcagca	2651
gccaaacaca cgcctccac ccatttttca caacaatccc agacctctcc tgcccgggac	2711
tgtaactggt ccagcctgta agcgggaagg gggctctggc actagctggt accccctctc	2771
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<210> 172
 <211> 1882
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (181)..(1194)

<400> 172

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tagacgttga attattgata ttctccctct ctctctctag gatacttaca gagagctaca	180
atg gaa aag tcc tgg atg ctg tgg aac ttt gtt gaa aga tgg cta ata	228
Met Glu Lys Ser Trp Met Leu Trp Asn Phe Val Glu Arg Trp Leu Ile	
1 5 10 15	
gcc ttg gct tca tgg tct tgg gct ctc tgc cgt att tct ctt tta cct	276
Ala Leu Ala Ser Trp Ser Trp Ala Leu Cys Arg Ile Ser Leu Leu Pro	
17 22 27 32	
tta ata gtg act ttt cat ctg tat gga ggc att atc tta ctt ttg tta	324
Leu Ile Val Thr Phe His Leu Tyr Gly Gly Ile Ile Leu Leu Leu Leu	
33 38 43 48	
ata ttc ata tca ata gca ggt att ctg tat aaa ttc cag gat gta ttg	372
Ile Phe Ile Ser Ile Ala Gly Ile Leu Tyr Lys Phe Gln Asp Val Leu	
49 54 59 64	
ctt tat ttt cca gaa cag cca tcc tct tca cgt ctt tat gtt ccc atg	420
Leu Tyr Phe Pro Glu Gln Pro Ser Ser Ser Arg Leu Tyr Val Pro Met	
65 70 75 80	
ccc act ggc att cca cat gaa aac att ttc atc aga acc aaa gat gga	468
Pro Thr Gly Ile Pro His Glu Asn Ile Phe Ile Arg Thr Lys Asp Gly	
81 86 91 96	
ata cgt ctg aat ctt att ttg ata cga tac act gga gac aat tca ccc	516
Ile Arg Leu Asn Leu Ile Leu Ile Arg Tyr Thr Gly Asp Asn Ser Pro	
97 102 107 112	
tat tcc cca act ata att tat ttt cat ggg aat gca ggc aac ata ggt	564
Tyr Ser Pro Thr Ile Ile Tyr Phe His Gly Asn Ala Gly Asn Ile Gly	
113 118 123 128	
cac agg ttg cca aat gca tta ctt atg ttg gtt aac ctc aaa gtt aac	612
His Arg Leu Pro Asn Ala Leu Leu Met Leu Val Asn Leu Lys Val Asn	
129 134 139 144	
ctt ttg ctg gtt gat tat cga gga tat gga aaa agt gaa gga gaa gca	660
Leu Leu Leu Val Asp Tyr Arg Gly Tyr Gly Lys Ser Glu Gly Glu Ala	
145 150 155 160	
agt gaa gaa gga ctc tac tta gat tct gaa gct gtg tta gac tac gtg	708
Ser Glu Glu Gly Leu Tyr Leu Asp Ser Glu Ala Val Leu Asp Tyr Val	
161 166 171 176	
atg act agc cct gac ctt gat aaa aca aaa att ttt ctt ttt ggc cgt	756

Met Thr Ser Pro Asp Leu Asp Lys Thr Lys Ile Phe Leu Phe Gly Arg	
177 182 187 192	
tcc ttg ggt gga gca gtg gct att cat ttg gct tct gaa aat tca cat	804
Ser Leu Gly Gly Ala Val Ala Ile His Leu Ala Ser Glu Asn Ser His	
193 198 203 208	
agg att tca gcc att atg gtg gag aac aca ttt tta agc ata cca cat	852
Arg Ile Ser Ala Ile Met Val Glu Asn Thr Phe Leu Ser Ile Pro His	
209 214 219 224	
atg gcc agc act tta ttt tca ttc ttt ccg atg cgt tac ctt cct tta	900
Met Ala Ser Thr Leu Phe Ser Phe Phe Pro Met Arg Tyr Leu Pro Leu	
225 230 235 240	
tgg tgc tac aaa aat aaa ttt ttg tcc tac aga aaa atc tct cag tgt	948
Trp Cys Tyr Lys Asn Lys Phe Leu Ser Tyr Arg Lys Ile Ser Gln Cys	
241 246 251 256	
aga atg cct tca ctt ttc atc tct gga ctc tca gat caa tta att cca	996
Arg Met Pro Ser Leu Phe Ile Ser Gly Leu Ser Asp Gln Leu Ile Pro	
257 262 267 272	
cca gta atg atg aaa caa ctt tat gaa ctc tcc cca tct cgg act aag	1044
Pro Val Met Met Lys Gln Leu Tyr Glu Leu Ser Pro Ser Arg Thr Lys	
273 278 283 288	
aga tta gcc att ttt cca gat ggg act cac aat gac aca tgg cag tgc	1092
Arg Leu Ala Ile Phe Pro Asp Gly Thr His Asn Asp Thr Trp Gln Cys	
289 294 299 304	
caa ggc tat ttc act gca ctt gaa cag ttc atc aaa gaa gtc gta aag	1140
Gln Gly Tyr Phe Thr Ala Leu Glu Gln Phe Ile Lys Glu Val Val Lys	
305 310 315 320	
agc cat tct cct gaa gaa atg gca aaa act tca tct aat gta aca att	1188
Ser His Ser Pro Glu Glu Met Ala Lys Thr Ser Ser Asn Val Thr Ile	
321 326 331 336	
ata taa tgtttccctt tttgattatt gcattgtatt ttaatttgtg cagaatgata	1244
Ile *	
337	
aagaatgttc cttttagaag tgtgttatgt ctgtacctgt ctgaagagtg acattaaact	1304
ttgaaaggac ttcactgctc ctttaogata ttccaaatag ttttttacat tggaaaaact	1364
aattcttggg attctttcat acattttcat caaaactttc agtgtgatta tgtattcata	1424
tcttcagttt aatatgtcag tataatagat attgttcaaa agtttcttgt tgctaaagtg	1484
gtgtaatctg ttacacagat gaatagctag atgtggaaag agatatgtaa acaagaaacc	1544
tttgggtatt gtttcttaag taaatattgg gacaatcatg gtaagcaaac ttagttctgt	1604
aactgcattt ttcaccttaa aagttaaag aaatgcatga tggatattta ttccttgaat	1664

tatgcaatgc aacatttttac atgtaaataag cactgggtcat atactgatgt atatggttat 1724
ctgggttata tctatttttta tgtaaactct attttgtttt tggcaagaag tgaaattgag 1784
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tacaaataaa tgggaccctg ttttccaaaa aaaaaaaaa 1882

<210> 173
<211> 1713
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (170)..(1153)

<400> 173

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acgcgtccgc ggacgcgtgg gaggggtttt aagtgtagtt gccgacgca atg gca 175
Met Ala
1
gcc ttt gca gtg gaa cct cag ggg ccc gcg tta gga tct gaa cca atg 223
Ala Phe Ala Val Glu Pro Gln Gly Pro Ala Leu Gly Ser Glu Pro Met
3 8 13 18
atg ctg ggt tca ccc aca tct cca aag cca gga gtt aat gcc cag ttc 271
Met Leu Gly Ser Pro Thr Ser Pro Lys Pro Gly Val Asn Ala Gln Phe
19 24 29 34
tta cct gga ttt tta atg ggg gat ttg cca gct ccg gtg act cca caa 319
Leu Pro Gly Phe Leu Met Gly Asp Leu Pro Ala Pro Val Thr Pro Gln
35 40 45 50
cct cga tca att agt ggc cct tca gta gga gta atg gaa atg aga tca 367
Pro Arg Ser Ile Ser Gly Pro Ser Val Gly Val Met Glu Met Arg Ser
51 56 61 66
cct tta ctt gca ggt ggg tca cca cca caa cca gtt gta cca gct cat 415
Pro Leu Leu Ala Gly Gly Ser Pro Pro Gln Pro Val Val Pro Ala His
67 72 77 82
aaa gat aaa agt ggc gct cca cca gtt aga agt ata tat gat gac att 463
Lys Asp Lys Ser Gly Ala Pro Pro Val Arg Ser Ile Tyr Asp Asp Ile
83 88 93 98
tct agc cca gga ctt gga tca aca cct tta act tca aga aga cag cca 511
Ser Ser Pro Gly Leu Gly Ser Thr Pro Leu Thr Ser Arg Arg Gln Pro
99 104 109 114

aac att tca gta atg cag agt cct ctt gtt gga gtt aca tct act cct	559
Asn Ile Ser Val Met Gln Ser Pro Leu Val Gly Val Thr Ser Thr Pro	
115 120 125 130	
gga aca ggg caa agt atg ttt agt cca gca agt atc ggt cag cca cga	607
Gly Thr Gly Gln Ser Met Phe Ser Pro Ala Ser Ile Gly Gln Pro Arg	
131 136 141 146	
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Lys Thr Thr Leu Ser Pro Ala Gln Leu Asp Pro Phe Tyr Thr Gln Gly	
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gat tct ttg act tca gaa gat cac ctc gat gac tct tgg gtg act gta	703
Asp Ser Leu Thr Ser Glu Asp His Leu Asp Asp Ser Trp Val Thr Val	
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Phe Gly Phe Pro Gln Ala Ser Ala Ser Tyr Ile Leu Leu Gln Phe Ala	
179 184 189 194	
cag tat ggg gga ata tct tat aac atg tgg atg tct aat aca gga aat	799
Gln Tyr Gly Gly Ile Ser Tyr Asn Met Trp Met Ser Asn Thr Gly Asn	
195 200 205 210	
tgg atg cat att cgt tat caa tct aaa ctg cag gct cgg aaa gcc tta	847
Trp Met His Ile Arg Tyr Gln Ser Lys Leu Gln Ala Arg Lys Ala Leu	
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agc aaa gat ggg agg att ttt gga gaa tcc atc atg att ggt gta aaa	895
Ser Lys Asp Gly Arg Ile Phe Gly Glu Ser Ile Met Ile Gly Val Lys	
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cca tgt att gac aaa agt gtt atg gaa agc agt gac aga tgt gct tta	943
Pro Cys Ile Asp Lys Ser Val Met Glu Ser Ser Asp Arg Cys Ala Leu	
243 248 253 258	
tca tct cca tct tta gcc ttt aca cca cca atc aaa act cta ggt aca	991
Ser Ser Pro Ser Leu Ala Phe Thr Pro Pro Ile Lys Thr Leu Gly Thr	
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Pro Thr Gln Pro Gly Ser Thr Pro Arg Ile Ser Thr Met Arg Pro Leu	
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Ala Thr Ala Tyr Lys Ala Ser Thr Ser Asp Tyr Gln Val Ile Ser Asp	
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Arg Gln Thr Pro Lys Lys Asp Glu Ser Leu Val Ser Lys Ala Met Glu	
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Tyr Met Phe Gly Trp *	
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ccg ccc ggc atg ggc ctc aat cag aat cgc ggc ccc atg ggt cct ggc Pro Pro Gly Met Gly Leu Asn Gln Asn Arg Gly Pro Met Gly Pro Gly 35 40 45 50	920
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ccc ggc ccc gct ccc gga gta ggc agc gca cca cca gcc tcc agc tcg Pro Gly Pro Ala Pro Gly Val Gly Ser Ala Pro Pro Ala Ser Ser Ser 115 120 125 130	1160
gcc ccg ccc gcc act cca cca acc tcg ggg gcc ccg cca ggg tcc ggg Ala Pro Pro Ala Thr Pro Pro Thr Ser Gly Ala Pro Pro Gly Ser Gly 131 136 141 146	1208
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Lys Met Pro Gly Gly Pro Lys Pro Gly Gly Gly Pro Gly Leu Ser Thr	
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Pro Gly Gly His Pro Lys Pro Pro His Arg Gly Gly Gly Glu Pro Arg	
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Gly Gly Arg Gln His His Pro Pro Tyr His Gln Gln His His Gln Gly	
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Pro Pro Pro Gly Gly Pro Gly Gly Arg Ser Glu Glu Lys Ile Ser Asp	
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275 280 285 290	
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Lys Thr Tyr Thr Gln Arg Cys Arg Leu Phe Val Gly Asn Leu Pro Ala	
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Asp Ile Thr Glu Asp Glu Phe Lys Arg Leu Phe Ala Lys Tyr Gly Glu	
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Pro Gly Glu Val Phe Ile Asn Lys Gly Lys Gly Phe Gly Phe Ile Lys	
323 328 333 338	
ctt gaa tct aga gct ttg gct gaa att gcc aaa gcc gaa ctg gat gat	1832
Leu Glu Ser Arg Ala Leu Ala Glu Ile Ala Lys Ala Glu Leu Asp Asp	
339 344 349 354	
aca ccc atg aga ggt aga cag ctt cga gtt cgc ttt gcc aca cat gct	1880
Thr Pro Met Arg Gly Arg Gln Leu Arg Val Arg Phe Ala Thr His Ala	
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371 376 381 386	
ttg gaa gaa gcc ttt agc caa ttt ggt cct att gaa agg gct gtt gta	1976
Leu Glu Glu Ala Phe Ser Gln Phe Gly Pro Ile Glu Arg Ala Val Val	
387 392 397 402	
ata gtg gat gat cgt gga aga tct aca ggg aaa ggc att gtt gaa ttt	2024
Ile Val Asp Asp Arg Gly Arg Ser Thr Gly Lys Gly Ile Val Glu Phe	
403 408 413 418	
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Ala Ser Lys Pro Ala Ala Arg Lys Ala Phe Glu Arg Cys Ser Glu Gly	
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Glu Gln Leu Asp Asp Glu Asp Gly Leu Pro Glu Lys Leu Ala Gln Lys	
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Asn Pro Met Tyr Gln Lys Glu Arg Glu Thr Pro Pro Arg Phe Ala Gln	
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His Gly Thr Phe Glu Tyr Glu Tyr Ser Gln Arg Trp ¹ Lys Ser Leu Asp	
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Ala Lys Asp Lys Leu Glu Ser Glu Met Glu Asp Ala Tyr His Glu His	
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Gln Ala Asn Leu Leu Arg Gln Asp Leu Met Arg Arg Gln Glu Glu Leu	
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Arg Arg Met Glu Glu Leu His Asn Gln Glu Met Gln Lys Arg Lys Glu	
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563 568 573 578	
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Met Ile Arg Gln Arg Glu Met Glu Glu Gln Met Arg Arg Gln Arg Glu	
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Glu Ser Tyr Ser Arg Met Gly Tyr Met Asp Pro Arg Glu Arg Asp Met	
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Arg Met Gly Gly Gly Gly Ala Met Asn Met Gly Asp Pro Tyr Gly Ser	
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Gly Gly Gln Lys Phe Pro Pro Leu Gly Gly Gly Gly Gly Ile Gly Tyr	
627 632 637 642	
gaa gct aat cct ggc gtt cca cca gca acc atg agt ggt tcc atg atg	2744
Glu Ala Asn Pro Gly Val Pro Pro Ala Thr Met Ser Gly Ser Met Met	
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Gly Ser Asp Met Arg Thr Glu Arg Phe Gly Gln Gly Gly Ala Gly Pro
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 Phe *
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 Met Arg Arg Glu
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agc aac aga tta tct gca cct tct tat ctt gcc aga agt cta gca gat 163
 Ser Asn Arg Leu Ser Ala Pro Ser Tyr Leu Ala Arg Ser Leu Ala Asp
 5 10 15 20

gtc cct aga gag tat ggt tct tct cag tca ttt gta acg gaa gtt agt 211
 Val Pro Arg Glu Tyr Gly Ser Ser Gln Ser Phe Val Thr Glu Val Ser
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ttt gct gtt gaa aat gga gac tct ggt tcc cga tat tat tat tca gac 259
 Phe Ala Val Glu Asn Gly Asp Ser Gly Ser Arg Tyr Tyr Tyr Ser Asp
 37 42 47 52

aat ttt ttt gat ggt cag aga aag cgg cca ctt gga gat cgt gca cat 307
 Asn Phe Phe Asp Gly Gln Arg Lys Arg Pro Leu Gly Asp Arg Ala His
 53 58 63 68

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 Glu Asp Tyr Arg Tyr Tyr Glu Tyr Asn His Asp Leu Phe Gln Arg Met
 69 74 79 84

cca cag aat cag ggg agg cat gct tca ggt att ggg aga gtt gct gct 403
 Pro Gln Asn Gln Gly Arg His Ala Ser Gly Ile Gly Arg Val Ala Ala
 85 90 95 100

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 Thr Ser Leu Gly Asn Leu Thr Asn His Gly Ser Glu Asp Leu Pro Leu
 101 106 111 116

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 Pro Pro Gly Trp Ser Val Asp Trp Thr Met Arg Gly Arg Lys Tyr Tyr
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Cys Ala Pro Ser Val	Pro Arg Tyr Asp	Gln Pro Pro Val	Thr Tyr	
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Gln Pro Gln Gln Thr	Glu Arg Asn Gln	Ser Leu Leu Val	Pro Ala Asn	
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Pro Tyr His Thr Ala	Glu Ile Pro Asp	Trp Leu Gln Val	Tyr Ala Arg	
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gcc cct gtg aaa tat	gac cac att ctg	aag tgg gaa ctc	ttc cag ctg	835
Ala Pro Val Lys Tyr	Asp His Ile Leu	Lys Trp Glu Leu	Phe Gln Leu	
229	234	239	244	
gct gac ctg gat aca	tac cag gga atg	cta aag ttg ctc	ttc atg aaa	883
Ala Asp Leu Asp Thr	Tyr Gln Gly Met	Leu Lys Leu Leu	Phe Met Lys	
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gaa ttg gag cag att	gtt aaa atg tat	gaa gca tac aga	caa gcc ctt	931
Glu Leu Glu Gln Ile	Val Lys Met Tyr	Glu Ala Tyr Arg	Gln Ala Leu	
261	266	271	276	
ctt aca gag ttg gaa	aac cga aag cag	aga cag cag tgg	tat gcc caa	979
Leu Thr Glu Leu Glu	Asn Arg Lys Gln	Arg Gln Gln Trp	Tyr Ala Gln	
277	282	287	292	
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Gln His Gly Lys Asn	Phe *			
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Cys Pro Gly Gly Gly Lys Ala Gln Leu Ser Ser Ala Ser Leu Leu Gly	
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Ala Gly Leu Leu Leu Gln Pro Pro Thr Pro Pro Pro Leu Leu Leu Leu	
33 38 43 48	
ctc ttc ccg ctg ctg ctc ttc tcc agg ctc tgt ggt gcc tta gct gga	192
Leu Phe Pro Leu Leu Leu Phe Ser Arg Leu Cys Gly Ala Leu Ala Gly	
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Pro Ile Ile Val Glu Pro His Val Thr Ala Val Trp Gly Lys Asn Val	
65 70 75 80	
tca tta aag tgt tta att gaa gta aat gaa acc ata aca cag att tca	288
Ser Leu Lys Cys Leu Ile Glu Val Asn Glu Thr Ile Thr Gln Ile Ser	
81 86 91 96	
tgg gag aag ata cat ggc aaa agt tca cag act gtt gca gtt cac cat	336
Trp Glu Lys Ile His Gly Lys Ser Ser Gln Thr Val Ala Val His His	
97 102 107 112	
ccc caa tat gga ttc tct gtt caa gga gaa tat cag gga aga gtc ttg	384
Pro Gln Tyr Gly Phe Ser Val Gln Gly Glu Tyr Gln Gly Arg Val Leu	
113 118 123 128	
ttt aaa aat tac tca ctt aat gat gca aca att act ctg cat aac ata	432
Phe Lys Asn Tyr Ser Leu Asn Asp Ala Thr Ile Thr Leu His Asn Ile	
129 134 139 144	
gga ttc tct gat tct gga aaa tac atc tgc aaa gct gtt aca ttc ccg	480
Gly Phe Ser Asp Ser Gly Lys Tyr Ile Cys Lys Ala Val Thr Phe Pro	
145 150 155 160	

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Leu Gly Asn Ala Gln Ser Ser Thr Thr Val Thr Val Leu Val Glu Pro	
161 166 171 176	
act gtg agc ctg ata aaa ggg cca gat tct tta att gat gga gga aat	576
Thr Val Ser Leu Ile Lys Gly Pro Asp Ser Leu Ile Asp Gly Gly Asn	
177 182 187 192	
gaa aca gta gca gcc att tgc atc gca gcc act gga aaa ccc gtt gca	624
Glu Thr Val Ala Ala Ile Cys Ile Ala Ala Thr Gly Lys Pro Val Ala	
193 198 203 208	
cat att gac tgg gaa ggt gat ctt ggt gaa atg gaa tcc act aca act	672
His Ile Asp Trp Glu Gly Asp Leu Gly Glu Met Glu Ser Thr Thr Thr	
209 214 219 224	
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Ser Phe Pro Asn Glu Thr Ala Thr Ile Ile Ser Gln Tyr Lys Leu Phe	
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Pro Ala Leu Glu Lys Asp Ile Arg Tyr Ser Phe Ile Leu Asp Ile Gln	
257 262 267 272	
tat gct cct gaa gtt tgc gta aca gga tat gat gga aat tgg ttt gta	864
Tyr Ala Pro Glu Val Ser Val Thr Gly Tyr Asp Gly Asn Trp Phe Val	
273 278 283 288	
gga aga aaa ggt gtt aat ctc aaa tgt aat gct gat gca aat cca cca	912
Gly Arg Lys Gly Val Asn Leu Lys Cys Asn Ala Asp Ala Asn Pro Pro	
289 294 299 304	
ccc ttc aaa tct gtg tgg agc agg ttg gat gga caa tgg cct gat ggt	960
Pro Phe Lys Ser Val Trp Ser Arg Leu Asp Gly Gln Trp Pro Asp Gly	
305 310 315 320	
tta ttg gct tca gac aat act ctt cat ttt gtc cat cca ttg act ttc	1008
Leu Leu Ala Ser Asp Asn Thr Leu His Phe Val His Pro Leu Thr Phe	
321 326 331 336	
aat tat tct ggt gtt tat atc tgt aaa gtg acc aat tcc ctt ggt caa	1056
Asn Tyr Ser Gly Val Tyr Ile Cys Lys Val Thr Asn Ser Leu Gly Gln	
337 342 347 352	
aga agt gac caa aaa gtc atc tac att tca gat cct cct act act acc	1104
Arg Ser Asp Gln Lys Val Ile Tyr Ile Ser Asp Pro Pro Thr Thr Thr	
353 358 363 368	
acc ctt cag cct aca att cag tgg cat ccc tca act gct gac atc gag	1152
Thr Leu Gln Pro Thr Ile Gln Trp His Pro Ser Thr Ala Asp Ile Glu	
369 374 379 384	

gat cta gca aca gaa cct aaa aaa ttg ccc ttc cca ttg tca act ttg	1200
Asp Leu Ala Thr Glu Pro Lys Lys Leu Pro Phe Pro Leu Ser Thr Leu	
385 390 395 400	
gca aca att aag gat gac aca att gcc acg atc att gct agt gta gtg	1248
Ala Thr Ile Lys Asp Asp Thr Ile Ala Thr Ile Ile Ala Ser Val Val	
401 406 411 416	
ggg ggt gct ctc ttc ata gta ctt gta agt gtt ttg gct gga ata ttc	1296
Gly Gly Ala Leu Phe Ile Val Leu Val Ser Val Leu Ala Gly Ile Phe	
417 422 427 432	
tgc tat agg aga aga cgg acg ttt cgt gga gac tac ttt gcc aag aac	1344
Cys Tyr Arg Arg Arg Arg Thr Phe Arg Gly Asp Tyr Phe Ala Lys Asn	
433 438 443 448	
tac att cca cca tca gat atg caa aaa gaa tca caa ata gat gtt ctt	1392
Tyr Ile Pro Pro Ser Asp Met Gln Lys Glu Ser Gln Ile Asp Val Leu	
449 454 459 464	
caa caa gat gag ctt gat tct tac cca gac agt gta aaa aaa gaa aaa	1440
Gln Gln Asp Glu Leu Asp Ser Tyr Pro Asp Ser Val Lys Lys Glu Lys	
465 470 475 480	
aaa aat cca gtg aac aat cta ata cgt aaa gac tat tta gaa gag cct	1488
Lys Asn Pro Val Asn Asn Leu Ile Arg Lys Asp Tyr Leu Glu Glu Pro	
481 486 491 496	
gaa aaa act cag tgg aac aat gta gaa aat ctc aat agg ttt gaa aga	1536
Glu Lys Thr Gln Trp Asn Asn Val Glu Asn Leu Asn Arg Phe Glu Arg	
497 502 507 512	
cca atg gat tat tat gaa gat cta aaa atg gga atg aag ttt gtc agt	1584
Pro Met Asp Tyr Tyr Glu Asp Leu Lys Met Gly Met Lys Phe Val Ser	
513 518 523 528	
gat gaa cat tat gat gaa aac gaa gat gac tta gtt tca cat gta gat	1632
Asp Glu His Tyr Asp Glu Asn Glu Asp Asp Leu Val Ser His Val Asp	
529 534 539 544	
ggg tcc gta att tcc agg agg gag tgg tat gtt tag caac cactgaatgt	1682
Gly Ser Val Ile Ser Arg Arg Glu Trp Tyr Val *	
545 550 555	
gacttaacta tgtacaatgt tcattcacac tagttgatca ttttcagatt gttcatactt	1742
tttcttgagg aagaataagc tttttcaagt tgattttcaa gcttactttt tatattctaa	1802
tctgacaaat gaaaatgtaa aatctgagtt cagtgtatct aagctgcttt acaatttttt	1862
ttcaatgctg tactactgtc tcaagattta aattttaatg cagagtactt tattggtgtg	1922
aggcacacag gtaagaagaa atgtcaacat taaatgtatg acttacttgg tacaaaaatt	1982
ttttaaaaag ggaactacct tgacattgtg tattaaatgt ttacctaaga ctataatctc	2042
aagtatgatg tttgtttaac atatacctct caaaatttat caccactcaa tgacactgca	2102

tcaaaattga ctataaaact aattcaagaa atatttatat atatttttta atatacaaaa	2162
aatatttagc ctgatggaat ggctttcctt ttcaaacatt attttctaag tttctataca	2222
aatgaaatct ttacctctgc atattaatga gccttgccat aattactgta gagtggcttt	2282
tcaaagatat tttgttgac taaaactgtg gtagtaaact cagtgaacat gatgtgtgga	2342
agagcataat tagctgggtca atatttttgt caaaaatacc tgcaagagta ataaaataca	2402
tacctttcaa acatgaaaaa aaaaaaaaa	2430

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 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (278)..(658)

<400> 177	
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aaaaaaagag atctctcgag gatccgaatt cgcggccgcg tcgacctagg gtgtgtgag	120
tgtaaattag tgcatgagt aggggaaggg agcctactag ggtgtagaat aggaagtatg	180
tgctgcgtt caggcgcttct ggctgggtgc ctcatcgggt gatgatagcc aagggtggga	240
taagtgtggt tgcgaagtgg gctcgtgggt tggcagt atg aga gtt gta atg gcc	295
Met Arg Val Val Met Ala	

1

cga ctg ttg agt gag ggg gag cag ggg atc cca acg gct tgc gct gcc	343
Arg Leu Leu Ser Glu Gly Glu Gln Gly Ile Pro Thr Ala Cys Ala Ala	
7 12 17 22	

ttt gcg cag cag ccg gcg ggc gag cca cgt cgc ggc ctg gct ggg gta	391
Phe Ala Gln Gln Pro Ala Gly Glu Pro Arg Arg Gly Leu Ala Gly Val	
23 28 33 38	

gga gag ggc ggt ccc cag tgc agt tgg gtg aac tac cgt tgc aca ctg	439
Gly Glu Gly Gly Pro Gln Cys Ser Trp Val Asn Tyr Arg Cys Thr Leu	
39 44 49 54	

gag ttt ctg gtg tct ttg ctt gga act gac cta gct cgt ggc agg ggg	487
Glu Phe Leu Val Ser Leu Leu Gly Thr Asp Leu Ala Arg Gly Arg Gly	
55 60 65 70	

aac tcg gct agc ggc ccc aca gcc cct gct gac tca aaa caa cta atg	535
Asn Ser Ala Ser Gly Pro Thr Ala Pro Ala Asp Ser Lys Gln Leu Met	
71 76 81 86	

aac tct gga agc cca gcc agg gac aat gca cct tca cag aga ttc tgc	583
Asn Ser Gly Ser Pro Ala Arg Asp Asn Ala Pro Ser Gln Arg Phe Cys	
87 92 97 102	
act aat ctg agt gaa ggt cta agg ttt gga atc tcc ccc tca tgg aga	631
Thr Asn Leu Ser Glu Gly Leu Arg Phe Gly Ile Ser Pro Ser Trp Arg	
103 108 113 118	
gaa gct ttg tat ggc tgt cat gct tag acagt gattcctgca acttgacctt	683
Glu Ala Leu Tyr Gly Cys His Ala *	
119 124	
caggctggga gaggtggaga gccatgcctg ttctccttcc ttgctatgga atttgctgac	743
acaatatctt ccgctggtg ctgggcatat cctaagaact tacaacttcc ctgtattatc	803
ctgtgtgagc agctgtcacc ttattggggg aaaaatgcct gaaaattagg gggcacttca	863
agtagatagc ttctatttcc tatattatcc tttactttaa aatgctttat tggaattatt	923
ttgataaaaag caaatacttg tatataagac aatatagga aatagaagct atctacttga	983
agtgtccctt aattttcagg catttttccc ccaataaggt gacagctgct cacacaggat	1043
aatacaggaa agttgtaagt tottaggata tgcccagcac caggcggaag atattgtgtc	1103
agcaaattcc atagcaagga aggagaacag gcatggctct ccacctctcc cagcctgaag	1163
gtcaagttgc aggaatcact gtctaagcat gacagccata caaagcttct ctccatgagg	1223
gggagattcc aaaccttaga ctttactca gattagtgc gaatctctgt gaagggtgat	1283
tgccctggc tgggcttcca gagttcattc tttactcaag gataacacgg cgatgaacgt	1343
cttacaactc agttgttttg agtcagcagg ggctgtgggg ccgctagccg agttccccct	1403
gccacgagct aggtcagttc caagcaaaga caccagaaac tccagtgtgc aacggtagtt	1463
cacccaactg cactggggac cgccctctcc taccacagcc aggccgagac gtggccgccc	1523
gccggctgct ggcgaaaggc agcgcaagcc gttgggatcc cctgctcccc ctactcaac	1583
agtcggggcca ttacaactct catactgcca acccagagc ccactctcgt gccgctcgtg	1643
ccgaattctt ggctcagg gccaaat	1670

<210> 178
 <211> 1702
 <212> DNA
 <213> Homo sapiens

<220>
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<222> (167)..(1093)

<400> 178

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ccgcctccac ggcccgcgct cgtactggag cgaagagcgg cctcctgaag gaggggaagg 120

gacgtggggg cggccacggc aggattaacc tccatttcag ctaatc atg gga gag 175
Met Gly Glu
1

att aaa gtc tct cct gat tat aac tgg ttt aga ggt aca gtt ccc ctt 223
Ile Lys Val Ser Pro Asp Tyr Asn Trp Phe Arg Gly Thr Val Pro Leu
4 9 14 19

aaa aag att att gtg gat gat gat gac agt aag ata tgg tcg ctc tat 271
Lys Lys Ile Ile Val Asp Asp Asp Asp Ser Lys Ile Trp Ser Leu Tyr
20 25 30 35

gac gcg ggc ccc cga agt atc agg tgt cct ctc ata ttc ctg ccc cct 319
Asp Ala Gly Pro Arg Ser Ile Arg Cys Pro Leu Ile Phe Leu Pro Pro
36 41 46 51

gtc agt gga act gca gat gtc ttt ttc cgg cag att ttg gct ctg act 367
Val Ser Gly Thr Ala Asp Val Phe Phe Arg Gln Ile Leu Ala Leu Thr
52 57 62 67

gga tgg ggt tac cgg gtt atc gct ttg cag tat cca gtt tat tgg gac 415
Gly Trp Gly Tyr Arg Val Ile Ala Leu Gln Tyr Pro Val Tyr Trp Asp
68 73 78 83

cat ctc gag ttc tgt gat gga ttc aga aaa ctt tta gac cat tta caa 463
His Leu Glu Phe Cys Asp Gly Phe Arg Lys Leu Leu Asp His Leu Gln
84 89 94 99

ttg gat aaa gtt cat ctt ttt ggc gct tct ttg gga ggc ttt ttg gcc 511
Leu Asp Lys Val His Leu Phe Gly Ala Ser Leu Gly Gly Phe Leu Ala
100 105 110 115

cag aaa ttt gct gaa tac act cac aaa tct cct aga gtc cat tcc cta 559
Gln Lys Phe Ala Glu Tyr Thr His Lys Ser Pro Arg Val His Ser Leu
116 121 126 131

atc ctc tgc aat tcc ttc agt gac acc tct atc ttc aac caa act tgg 607
Ile Leu Cys Asn Ser Phe Ser Asp Thr Ser Ile Phe Asn Gln Thr Trp
132 137 142 147

act gca aac agc ttt tgg ctg atg cct gca ttt atg ctc aaa aaa ata 655
Thr Ala Asn Ser Phe Trp Leu Met Pro Ala Phe Met Leu Lys Lys Ile
148 153 158 163

gtt ctt gga aat ttt tca tct ggc ccg gtg gac cct atg atg gct gat 703
Val Leu Gly Asn Phe Ser Ser Gly Pro Val Asp Pro Met Met Ala Asp
164 169 174 179

gcc att gat ttc atg gta gac agg cta gaa agt ttg ggt cag agt gaa 751
Ala Ile Asp Phe Met Val Asp Arg Leu Glu Ser Leu Gly Gln Ser Glu

180	185	190	195	
ctg gct tca aga ctt acc ttg aat tgt caa aat tct tat gtg gaa cct				799
Leu Ala Ser Arg Leu Thr Leu Asn Cys Gln Asn Ser Tyr Val Glu Pro				
196	201	206	211	
cat aaa att cgg gac ata cct gta act att atg gat gtg ttt gat cag				847
His Lys Ile Arg Asp Ile Pro Val Thr Ile Met Asp Val Phe Asp Gln				
212	217	222	227	
agt gcg ctt tca act gaa gct aaa gaa gaa atg tac aag ctg tat cct				895
Ser Ala Leu Ser Thr Glu Ala Lys Glu Glu Met Tyr Lys Leu Tyr Pro				
228	233	238	243	
aat gcc cga aga gct cat ctg aaa aca gga ggc aat ttc cca tac ctg				943
Asn Ala Arg Arg Ala His Leu Lys Thr Gly Gly Asn Phe Pro Tyr Leu				
244	249	254	259	
tgc aga agt gca gag gtc aat ctt tat gta cag ata cat ttg ctg caa				991
Cys Arg Ser Ala Glu Val Asn Leu Tyr Val Gln Ile His Leu Leu Gln				
260	265	270	275	
ttc cat gga acc aaa tac gcg gcc att gac cca tca atg gtc agt gcc				1039
Phe His Gly Thr Lys Tyr Ala Ala Ile Asp Pro Ser Met Val Ser Ala				
276	281	286	291	
gag gag ctt gag gtg cag aaa ggc agc ctt ggc atc agc cag gag gag				1087
Glu Glu Leu Glu Val Gln Lys Gly Ser Leu Gly Ile Ser Gln Glu Glu				
292	297	302	307	
cag tag tgtgtctctc gctgtcaatg atgagttgac cgggtgtgtt cttgtatagt				1143
Gln *				
308				
cagtggcacc agcaccgcgc agccggcctt ttccttcagg ttcgtcaggc tcaccggttc				1203
tcactgtgtc tgggaagtag gactgatggt catcttcacg acaggcggca tctccactaa				1263
gcctgtgttaa ctgttccctc tttggttttc ttagcttttg aatttgaaga agtacttttg				1323
aagactccca ttttaagaac cgtgcaaatt ttgctaccaa aagtcttcac cactgtgttc				1383
ttaagtgaat gttaatttct gaggtttggg actttgtggt ggtttttttc ttcttttctt				1443
ttccattctt ctttctttct ttttatgttg tttgctgtaa atgctgcaca tccagattgc				1503
atatcaggac attggttatt ttatgctttc ttggatataa ccatgatcag agtgccatgg				1563
ccactacccc actgtttgct ctctgcaaa tcaactgctt ttaatttaca cttaaacaaa				1623
ttgttttgag tgtagctac tgcctttcta gatattagtc atttggaata aaaattcaat				1683
ttcaaaaaaa aaaaaaaa				1702

<210> 179
 <211> 2821
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (234) .. (2492)

<400> 179

atttggccct cgaggccaag aattcggcac gaggcaaagg tttcaccctt cagttcagtc	60
cccaatccct gcttattatt tccctaacag aagaccatcc ccettgccac tccctggttt	120
ttcttctctg gcagcaatga agcagctgct gaccagctc tagttttcgg gaagtcagat	180
gaccttttcc ctcccgcggc tctctacctc tcgccgcccc tagggaggac acc atg	236
	Met
	1
ggc cca ctg atg gtt ctt ttt tgc ctg ctg ttc ctg tac cca ggt ctg	284
Gly Pro Leu Met Val Leu Phe Cys Leu Leu Phe Leu Tyr Pro Gly Leu	
2 7 12 17	
gca gac tcg gct ccc tcc tgc cct cag aac gtg aat atc tcg ggt ggc	332
Ala Asp Ser Ala Pro Ser Cys Pro Gln Asn Val Asn Ile Ser Gly Gly	
18 23 28 33	
acc ttc acc ctc agc cat ggc tgg gct cct ggg agc ctt ctc acc tac	380
Thr Phe Thr Leu Ser His Gly Trp Ala Pro Gly Ser Leu Leu Thr Tyr	
34 39 44 49	
tcc tgc ccc cag ggc ctg tac cca tcc cca gca tca cgg ctg tgc aag	428
Ser Cys Pro Gln Gly Leu Tyr Pro Ser Pro Ala Ser Arg Leu Cys Lys	
50 55 60 65	
agc agc gga cag tgg cag acc cca gga gcc acc cgg tct ctg tct aag	476
Ser Ser Gly Gln Trp Gln Thr Pro Gly Ala Thr Arg Ser Leu Ser Lys	
66 71 76 81	
gcg gtc tgc aaa cct gtg cgc tgt cca gcc cct gtc tcc ttt gag aat	524
Ala Val Cys Lys Pro Val Arg Cys Pro Ala Pro Val Ser Phe Glu Asn	
82 87 92 97	
ggc att tat acc cca cgg ctg ggg tcc tat ccc gtg ggt ggc aat gtg	572
Gly Ile Tyr Thr Pro Arg Leu Gly Ser Tyr Pro Val Gly Gly Asn Val	
98 103 108 113	
agc ttc gag tgt gag gat ggc ttc ata ttg cgg ggc tcg cct gtg cgt	620
Ser Phe Glu Cys Glu Asp Gly Phe Ile Leu Arg Gly Ser Pro Val Arg	
114 119 124 129	
cag tgt cgc ccc aac ggc atg tgg gat gga gaa aca gct gtg tgt gat	668
Gln Cys Arg Pro Asn Gly Met Trp Asp Gly Glu Thr Ala Val Cys Asp	
130 135 140 145	
aat ggg gct ggc cac tgc ccc aac cca ggc att tca ctg ggc gca gtg	716

Asn Gly Ala Gly His Cys Pro Asn Pro Gly Ile Ser Leu Gly Ala Val	
146 151 156 161	
cgg aca ggc ttc cgc ttt ggt cat ggg gac aag gtc cgc tat cgc tgc	764
Arg Thr Gly Phe Arg Phe Gly His Gly Asp Lys Val Arg Tyr Arg Cys	
162 167 172 177	
tcc tcg aat ctt gtg ctc acg ggg tct tcg gag cgg gag tgc cag ggc	812
Ser Ser Asn Leu Val Leu Thr Gly Ser Ser Glu Arg Glu Cys Gln Gly	
178 183 188 193	
aac ggg gtc tgg agt gga acg gag ccc atc tgc cgc caa ccc tac tct	860
Asn Gly Val Trp Ser Gly Thr Glu Pro Ile Cys Arg Gln Pro Tyr Ser	
194 199 204 209	
tat gac ttc cct gag gac gtg gcc cct gcc ctg ggc act tcc ttc tcc	908
Tyr Asp Phe Pro Glu Asp Val Ala Pro Ala Leu Gly Thr Ser Phe Ser	
210 215 220 225	
cac atg ctt ggg gcc acc aat ccc acc cag aag aca aag gaa agc ctg	956
His Met Leu Gly Ala Thr Asn Pro Thr Gln Lys Thr Lys Glu Ser Leu	
226 231 236 241	
ggc cgt aaa atc caa atc cag cgc tct ggt cat ctg aac ctc tac ctg	1004
Gly Arg Lys Ile Gln Ile Gln Arg Ser Gly His Leu Asn Leu Tyr Leu	
242 247 252 257	
ctc ctg gac tgt tcg cag agt gtg tcg gaa aat gac ttt ctc atc ttc	1052
Leu Leu Asp Cys Ser Gln Ser Val Ser Glu Asn Asp Phe Leu Ile Phe	
258 263 268 273	
aag gag agc gcc tcc ctc atg gtg gac agg atc ttc agc ttt gag atc	1100
Lys Glu Ser Ala Ser Leu Met Val Asp Arg Ile Phe Ser Phe Glu Ile	
274 279 284 289	
aat gtg agc gtt gcc att atc acc ttt gcc tca gag ccc aaa gtc ctc	1148
Asn Val Ser Val Ala Ile Ile Thr Phe Ala Ser Glu Pro Lys Val Leu	
290 295 300 305	
atg tct gtc ctg aac gac aac tcc cgg gat atg act gag gtg atc agc	1196
Met Ser Val Leu Asn Asp Asn Ser Arg Asp Met Thr Glu Val Ile Ser	
306 311 316 321	
agc ctg gaa aat gcc aac tat aaa gat cat gaa aat gga act ggg act	1244
Ser Leu Glu Asn Ala Asn Tyr Lys Asp His Glu Asn Gly Thr Gly Thr	
322 327 332 337	
aac acc tat gcg gcc tta aac agt gtc tat ctc atg atg aac aac caa	1292
Asn Thr Tyr Ala Ala Leu Asn Ser Val Tyr Leu Met Met Asn Asn Gln	
338 343 348 353	
atg cga ctc ctc ggc atg gaa acg atg gcc tgg cag gaa atc cga cat	1340
Met Arg Leu Leu Gly Met Glu Thr Met Ala Trp Gln Glu Ile Arg His	
354 359 364 369	
gcc atc atc ctt ctg aca gat gga aag tcc aat atg ggt ggc tct ccc	1388
Ala Ile Ile Leu Leu Thr Asp Gly Lys Ser Asn Met Gly Gly Ser Pro	

370	375	380	385	
aag aca gct gtt gac cat atc aga gag atc ctg aac atc aac cag aag				1436
Lys Thr Ala Val Asp His Ile Arg Glu Ile Leu Asn Ile Asn Gln Lys				
386	391	396	401	
agg aat gac tat ctg gac atc tat gcc atc ggg gtg ggc aag ctg gat				1484
Arg Asn Asp Tyr Leu Asp Ile Tyr Ala Ile Gly Val Gly Lys Leu Asp				
402	407	412	417	
gtg gac tgg aga gaa ctg aat gag cta ggg tcc aag aag gat ggt gag				1532
Val Asp Trp Arg Glu Leu Asn Glu Leu Gly Ser Lys Lys Asp Gly Glu				
418	423	428	433	
agg cat gcc ttc att ctg cag gac aca aag gct ctg cac cag gtc ttt				1580
Arg His Ala Phe Ile Leu Gln Asp Thr Lys Ala Leu His Gln Val Phe				
434	439	444	449	
gaa cat atg ctg gat gtc tcc aag ctc aca gac acc atc tgc ggg gtg				1628
Glu His Met Leu Asp Val Ser Lys Leu Thr Asp Thr Ile Cys Gly Val				
450	455	460	465	
ggg aac atg tca gca aac gcc tct gac cag gag agg aca ccc tgg cat				1676
Gly Asn Met Ser Ala Asn Ala Ser Asp Gln Glu Arg Thr Pro Trp His				
466	471	476	481	
gtc act att aag ccc aag agc caa gag acc tgc cgg ggg gcc ctc atc				1724
Val Thr Ile Lys Pro Lys Ser Gln Glu Thr Cys Arg Gly Ala Leu Ile				
482	487	492	497	
tcc gac caa tgg gtc ctg aca gca gct cat tgc ttc cgc gat ggc aac				1772
Ser Asp Gln Trp Val Leu Thr Ala Ala His Cys Phe Arg Asp Gly Asn				
498	503	508	513	
gac cac tcc ctg tgg agg gtc aat gtg gga gac ccc aaa tcc cag tgg				1820
Asp His Ser Leu Trp Arg Val Asn Val Gly Asp Pro Lys Ser Gln Trp				
514	519	524	529	
ggc aaa gaa ttc ctt att gag aag gcg gtg atc tcc cca ggg ttt gat				1868
Gly Lys Glu Phe Leu Ile Glu Lys Ala Val Ile Ser Pro Gly Phe Asp				
530	535	540	545	
gtc ttt gcc aaa aag aac cag gga atc ctg gag ttc tat ggt gat gac				1916
Val Phe Ala Lys Lys Asn Gln Gly Ile Leu Glu Phe Tyr Gly Asp Asp				
546	551	556	561	
ata gct ctg ctg aag ctg gcc cag aaa gta aag atg tcc acc cat gcc				1964
Ile Ala Leu Leu Lys Leu Ala Gln Lys Val Lys Met Ser Thr His Ala				
562	567	572	577	
agg ccc atc tgc ctt ccc tgc acg atg gag gcc aat ctg gct ctg cgg				2012
Arg Pro Ile Cys Leu Pro Cys Thr Met Glu Ala Asn Leu Ala Leu Arg				
578	583	588	593	
aga cct caa ggc agc acc tgt agg gac cat gag aat gaa ctg ctg aac				2060
Arg Pro Gln Gly Ser Thr Cys Arg Asp His Glu Asn Glu Leu Leu Asn				
594	599	604	609	

aaa cag agt gtt cct gct cat ttt gtc gcc ttg aat ggg agc aaa ctg	2108
Lys Gln Ser Val Pro Ala His Phe Val Ala Leu Asn Gly Ser Lys Leu	
610 615 620 625	
aac att aac ctt aag atg gga gtg gag tgg aca agc tgt gcc gag gtt	2156
Asn Ile Asn Leu Lys Met Gly Val Glu Trp Thr Ser Cys Ala Glu Val	
626 631 636 641	
gtc tcc caa gaa aaa acc atg ttc ccc aac ttg aca gat gtc agg gag	2204
Val Ser Gln Glu Lys Thr Met Phe Pro Asn Leu Thr Asp Val Arg Glu	
642 647 652 657	
gtg gtg aca gac cag ttc cta tgc agt ggg acc cag gag gat gag agt	2252
Val Val Thr Asp Gln Phe Leu Cys Ser Gly Thr Gln Glu Asp Glu Ser	
658 663 668 673	
ccc tgc aag gga gaa tct ggg gga gca gtt ttc ctt gag cgg aga ttc	2300
Pro Cys Lys Gly Glu Ser Gly Gly Ala Val Phe Leu Glu Arg Arg Phe	
674 679 684 689	
agg ttt ttt cag gtg ggt ctg gtg agc tgg ggt ctt tac aac ccc tgc	2348
Arg Phe Phe Gln Val Gly Leu Val Ser Trp Gly Leu Tyr Asn Pro Cys	
690 695 700 705	
ctt ggc tct gct gac aaa aac tcc cgc aaa agg gcc cct cgt agc aag	2396
Leu Gly Ser Ala Asp Lys Asn Ser Arg Lys Arg Ala Pro Arg Ser Lys	
706 711 716 721	
gtc ccg ccg cca cga gac ttt cac atc aat ctc ttc cgc atg cag ccc	2444
Val Pro Pro Pro Arg Asp Phe His Ile Asn Leu Phe Arg Met Gln Pro	
722 727 732 737	
tgg ctg agg cag cac ctg ggg gat gtc ctg aat ttt tta ccc ctc tag	2492
Trp Leu Arg Gln His Leu Gly Asp Val Leu Asn Phe Leu Pro Leu *	
738 743 748 753	
ccatggccac tgagccctct gctgccctgc cagaatctgc cgccctcca tcttctacct	2552
ctgaatggcc acccttagac cctgtgatcc atcctctctc ctagctgagt aaatccgggt	2612
ctctaggatg ccagaggcag cgcacacaag ctgggaaatc ctcagggtc ctaccagcag	2672
gactgcctcg ctgccccacc tcccgctcct tggcctgtcc ccagattcct tccctgggtg	2732
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<220>
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<400> 180

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cattgcaggg tgtgctgtct tgattattca cccacacccc attggtgtct gatcaccacg	180
ggg atg cct gcc ttg gtc att cac cca cat tcc ctt ggt ggc aag tca	228
Met Pro Ala Leu Val Ile His Pro His Ser Leu Gly Gly Lys Ser	
1 5 10	
att gtg ggg aca cgt gct ttg gct gct cac cca cat tgc agc cca gga	276
Ile Val Gly Thr Arg Ala Leu Ala Ala His Pro His Cys Ser Pro Gly	
16 21 26 31	
ctg ctc ccc acc ccg ctt ctc cgt gtc tct acc ctt ctc ttt aaa ctt	324
Leu Leu Pro Thr Pro Leu Leu Arg Val Ser Thr Leu Leu Phe Lys Leu	
32 37 42 47	
gcc tcc ttt act atg ggc aac ctt cca ccc tcc att cct cct tct tct	372
Ala Ser Phe Thr Met Gly Asn Leu Pro Pro Ser Ile Pro Pro Ser Ser	
48 53 58 63	
ccc tta gcc tgt gtt ctc aaa aac tta aaa cct ctt caa ctc aca cct	420
Pro Leu Ala Cys Val Leu Lys Asn Leu Lys Pro Leu Gln Leu Thr Pro	
64 69 74 79	
gac cta aaa cct aag tgt ctt att ttc ttc tgc aac acc gct ggg ccc	468
Asp Leu Lys Pro Lys Cys Leu Ile Phe Phe Cys Asn Thr Ala Gly Pro	
80 85 90 95	
caa tac aaa ctc gac aat gat tcc aaa tag c cagaaaacgg cactttcgag	519
Gln Tyr Lys Leu Asp Asn Asp Ser Lys *	
96 101	
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cctgacgtcc aggcattctt ttacacattg gtccctccct agtctctgct cccaatgtga	639
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tcaaataataa aaatccagcc cagttcatgg ctctgtttggc agcaaccctg agacacttta	1059

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 cagtgccga gggacgggtg gacagttgcc cctgcgcaa gggagcccac tgccatcccc 360
 cgtgggctgg cgtgcagtc gcgcaccctg tgttgctgc tgacttgctt atgtctgttt 420
 ggaagctgct tctgtttggc cacaggcctg tgttcctggg ctgatggcca cagagctgac 480
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 aaaggaggga tgtacctgtg tgtgtgcatg tgcacgtgtt tgagcgtgtg tgtgtgtgtg 720
 caagtgggtt cttggatatg tgtagtgtga gcatgtgtgc atgtgtgagc ctgtgcacgt 780
 gcatgttgta ggtgcataag catgtacacg cgtgagcatg catgtgcgtg tacacgtgta 840

taggtgtaca tgtgcatgag ttgtgtacat gcgtgagcac gtgtatag atg tac gtg	897
Met Tyr Val	
1	

tgt gtg cgc atg tgt gcg tgt aca tgt gtt tgt gtc ttg ggt atg cat	945
Cys Val Arg Met Cys Ala Cys Thr Cys Val Cys Val Leu Gly Met His	
4 9 14 19	

aag cat gca cgt gtg tat gaa tgt gcg tgt gta tgc atg agc acg tat	993
Lys His Ala Arg Val Tyr Glu Cys Ala Cys Val Cys Met Ser Thr Tyr	
20 25 30 35	

gca tgt gtg atg cgc atg ttc ttg tgt act tct ctg agg ggg cac ata	1041
Ala Cys Val Met Arg Met Phe Leu Cys Thr Ser Leu Arg Gly His Ile	
36 41 46 51	

tgt atg agt gta tga gtgcatacat atgcatatgg tgtacgtgtg tgtactttgt	1096
Cys Met Ser Val *	
52	

gtgtgggcat gtatgcgtat gagtacttgt gtgtggctgg tgtatgggtg agcatgcaca	1156
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tgtgtatgga tgcataatgtg agctgtacat gtagagtgtg catgtgtgtt gcatgagcat	1216
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gcatgcgtgc gagtgctgt gtgtgtactt gcatatatgt ggctgtgcag gtacccggcg	1276
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aggccccggg ctgagcctcc ctggcccctc ttgcccctca gtggagcagg gcctgggtgg	1396
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atg ggg gac aag aaa gat gac aag gac tca ccc aag aac aag ggc	165

Met	Gly	Asp	Lys	Lys	Asp	Asp	Lys	Asp	Ser	Pro	Lys	Lys	Asn	Lys	Gly		
1				5					10					15			
aag	gag	cgc	cgg	gac	ctg	gat	gac	ctc	aag	aag	gag	gtg	gct	atg	aca	213	
Lys	Glu	Arg	Arg	Asp	Leu	Asp	Asp	Leu	Lys	Lys	Glu	Val	Ala	Met	Thr		
17				22				27						32			
gag	cac	aag	atg	tca	gtg	gaa	gag	gtc	tgc	cgg	aaa	tac	aac	aca	gac	261	
Glu	His	Lys	Met	Ser	Val	Glu	Glu	Val	Cys	Arg	Lys	Tyr	Asn	Thr	Asp		
33				38				43						48			
tgt	gtg	cag	ggg	ttg	acc	cac	agc	aaa	gcc	cag	gag	atc	ctg	gcc	cgg	309	
Cys	Val	Gln	Gly	Leu	Thr	His	Ser	Lys	Ala	Gln	Glu	Ile	Leu	Ala	Arg		
49				54				59						64			
gat	ggg	cct	aac	gca	ctc	acg	cca	ccg	cct	acc	acc	cca	gag	tgg	gtc	357	
Asp	Gly	Pro	Asn	Ala	Leu	Thr	Pro	Pro	Pro	Thr	Thr	Pro	Glu	Trp	Val		
65				70				75						80			
aag	ttt	tgc	cgg	cag	ctc	ttc	ggg	ggc	ttc	tcc	atc	ctg	ctg	tgg	atc	405	
Lys	Phe	Cys	Arg	Gln	Leu	Phe	Gly	Gly	Phe	Ser	Ile	Leu	Leu	Trp	Ile		
81				86				91						96			
ggg	gct	atc	ctc	tgc	ttc	ctg	gcc	tac	ggg	atc	cag	gcg	ggc	acc	gag	453	
Gly	Ala	Ile	Leu	Cys	Phe	Leu	Ala	Tyr	Gly	Ile	Gln	Ala	Gly	Thr	Glu		
97				102				107						112			
gac	gac	ccc	tct	ggg	gac	aac	ctg	tac	ctg	ggc	atc	gtg	ctg	gcg	gcc	501	
Asp	Asp	Pro	Ser	Gly	Asp	Asn	Leu	Tyr	Leu	Gly	Ile	Val	Leu	Ala	Ala		
113				118				123						128			
gtg	gtg	atc	atc	act	ggc	tgc	ttc	tcc	tac	tac	cag	gag	gcc	aag	agc	549	
Val	Val	Ile	Ile	Thr	Gly	Cys	Phe	Ser	Tyr	Tyr	Gln	Glu	Ala	Lys	Ser		
129				134				139						144			
tcc	aag	atc	atg	gag	tcc	ttc	aag	aac	atg	gtg	ccc	cag	caa	gcc	ctg	597	
Ser	Lys	Ile	Met	Glu	Ser	Phe	Lys	Asn	Met	Val	Pro	Gln	Gln	Ala	Leu		
145				150				155						160			
gtg	atc	cgg	gaa	ggg	gag	aag	atg	cag	gtg	aac	gct	gag	gag	gtg	gtg	645	
Val	Ile	Arg	Glu	Gly	Glu	Lys	Met	Gln	Val	Asn	Ala	Glu	Glu	Val	Val		
161				166				171						176			
gtc	ggg	gac	ctg	gtg	gag	atc	aag	ggg	gga	gac	cga	gtg	cca	gct	gac	693	
Val	Gly	Asp	Leu	Val	Glu	Ile	Lys	Gly	Gly	Asp	Arg	Val	Pro	Ala	Asp		
177				182				187						192			
ctg	cgg	atc	atc	tca	gcc	cac	ggc	tgc	aag	gtg	gac	aac	tcc	tcc	ctg	741	
Leu	Arg	Ile	Ile	Ser	Ala	His	Gly	Cys	Lys	Val	Asp	Asn	Ser	Ser	Leu		
193				198				203						208			
act	ggc	gaa	tcc	gag	ccc	cag	act	cgc	tct	ccc	gac	tgc	acg	cac	gac	789	
Thr	Gly	Glu	Ser	Glu	Pro	Gln	Thr	Arg	Ser	Pro	Asp	Cys	Thr	His	Asp		
209				214				219						224			
aac	ccc	ttg	gag	act	cgg	aac	atc	acc	ttc	ttt	tcc	acc	aac	tgt	gtg	837	
Asn	Pro	Leu	Glu	Thr	Arg	Asn	Ile	Thr	Phe	Phe	Ser	Thr	Asn	Cys	Val		

225	230	235	240	
gaa ggc acg gct cgg ggc gtg gtg gtg gcc acg ggc gac cgc act gtc				885
Glu Gly Thr Ala Arg Gly Val Val Val Ala Thr Gly Asp Arg Thr Val				
241	246	251	256	
atg ggc cgt atc gcc acc ctg gca tca ggg ctg gag gtg ggc aag acg				933
Met Gly Arg Ile Ala Thr Leu Ala Ser Gly Leu Glu Val Gly Lys Thr				
257	262	267	272	
ccc atc gcc atc gag att gag cac ttc atc cag ctc atc acc ggc gtg				981
Pro Ile Ala Ile Glu Ile Glu His Phe Ile Gln Leu Ile Thr Gly Val				
273	278	283	288	
gct gtc ttc ctg ggt gtc tcc ttc ttc atc ctc tcc ctc att ctc gga				1029
Ala Val Phe Leu Gly Val Ser Phe Phe Ile Leu Ser Leu Ile Leu Gly				
289	294	299	304	
tac acc tgg ctt gag gct gtc atc ttc ctc atc ggc atc atc gtg gcc				1077
Tyr Thr Trp Leu Glu Ala Val Ile Phe Leu Ile Gly Ile Ile Val Ala				
305	310	315	320	
aat gtc cca gag ggt ctg ctg gcc act gtc act gtg tgt ctg acg ctg				1125
Asn Val Pro Glu Gly Leu Leu Ala Thr Val Thr Val Cys Leu Thr Leu				
321	326	331	336	
acc gcc aag cgc atg gcc cgg aag aac tgc ctg gtg aag aac ctg gag				1173
Thr Ala Lys Arg Met Ala Arg Lys Asn Cys Leu Val Lys Asn Leu Glu				
337	342	347	352	
gct gta gaa acc ctg ggc tcc acg tcc acc atc tgc tca gat aag aca				1221
Ala Val Glu Thr Leu Gly Ser Thr Ser Thr Ile Cys Ser Asp Lys Thr				
353	358	363	368	
ggg acc ctc act cag aac cgc atg aca gtc gcc cac atg tgg ttt gac				1269
Gly Thr Leu Thr Gln Asn Arg Met Thr Val Ala His Met Trp Phe Asp				
369	374	379	384	
aac cag atc cac gag gct gac acc act gag gac cag tca ggg acc tca				1317
Asn Gln Ile His Glu Ala Asp Thr Thr Glu Asp Gln Ser Gly Thr Ser				
385	390	395	400	
ttt gac aag agt tgc cac acc tgg gtg gcc ctg tct cac atc gct ggg				1365
Phe Asp Lys Ser Ser His Thr Trp Val Ala Leu Ser His Ile Ala Gly				
401	406	411	416	
ctc tgc aat cgc gct gtc ttc aag ggt ggt cag gac aac atc cct gtg				1413
Leu Cys Asn Arg Ala Val Phe Lys Gly Gly Gln Asp Asn Ile Pro Val				
417	422	427	432	
ctc aag agg gat gtg gct ggg gat gcg tct gag tct gcc ctg ctc aag				1461
Leu Lys Arg Asp Val Ala Gly Asp Ala Ser Glu Ser Ala Leu Leu Lys				
433	438	443	448	
tgc atc gag ctg tcc tct ggc tcc gtg aag ctg atg cgt gaa cgc aac				1509
Cys Ile Glu Leu Ser Ser Gly Ser Val Lys Leu Met Arg Glu Arg Asn				
449	454	459	464	

aag aaa gtg gct gag att ccc ttc aat tcc acc aac aaa tac cag ctc	1557
Lys Lys Val Ala Glu Ile Pro Phe Asn Ser Thr Asn Lys Tyr Gln Leu	
465 470 475 480	
tcc atc cat gag acc gag gac ccc aac gac aac cga tac ctg ctg gtg	1605
Ser Ile His Glu Thr Glu Asp Pro Asn Asp Asn Arg Tyr Leu Leu Val	
481 486 491 496	
atg aag ggt gcc ccc gag cgc atc ctg gac cgc tgc tcc acc atc ctg	1653
Met Lys Gly Ala Pro Glu Arg Ile Leu Asp Arg Cys Ser Thr Ile Leu	
497 502 507 512	
cta cag ggc aag gag cag cct ctg gac gag gaa atg aag gag gcc ttc	1701
Leu Gln Gly Lys Glu Gln Pro Leu Asp Glu Glu Met Lys Glu Ala Phe	
513 518 523 528	
cag aat gcc tac ctt gag ctc ggt ggc ctg ggc gag cgc gtg ctt ggt	1749
Gln Asn Ala Tyr Leu Glu Leu Gly Gly Leu Gly Glu Arg Val Leu Gly	
529 534 539 544	
ttc tgc cat tat tac ctg ccc gag gag cag ttc ccc aag ggc ttt gcc	1797
Phe Cys His Tyr Tyr Leu Pro Glu Glu Gln Phe Pro Lys Gly Phe Ala	
545 550 555 560	
ttc gac tgt gat gac gtg aac ttc acc acg gac aac ctc tgc ttt gtg	1845
Phe Asp Cys Asp Asp Val Asn Phe Thr Thr Asp Asn Leu Cys Phe Val	
561 566 571 576	
ggc ctc atg tcc atg atc gac cca ccc cgg gca gcc gtc cct gac gcg	1893
Gly Leu Met Ser Met Ile Asp Pro Pro Arg Ala Ala Val Pro Asp Ala	
577 582 587 592	
gtg ggc aag tgt cgc agc gca ggc atc aag gtc atc atg gtc acc ggc	1941
Val Gly Lys Cys Arg Ser Ala Gly Ile Lys Val Ile Met Val Thr Gly	
593 598 603 608	
gat cac ccc atc acg gcc aag gcc att gcc aag ggt gtg ggc atc atc	1989
Asp His Pro Ile Thr Ala Lys Ala Ile Ala Lys Gly Val Gly Ile Ile	
609 614 619 624	
ttt gag ggc aac gag act gtg gag gac atc gcc gcc cgg ctc aac att	2037
Phe Glu Gly Asn Glu Thr Val Glu Asp Ile Ala Ala Arg Leu Asn Ile	
625 630 635 640	
ccc gtc agc cag gtt aac ccc cgg gat gcc aag gcc tgc gtg atc cac	2085
Pro Val Ser Gln Val Asn Pro Arg Asp Ala Lys Ala Cys Val Ile His	
641 646 651 656	
ggc acc gac ctc aag gac ttc acc tcc gag caa atc gac gag atc ctg	2133
Gly Thr Asp Leu Lys Asp Phe Thr Ser Glu Gln Ile Asp Glu Ile Leu	
657 662 667 672	
cag aat cac acc gag atc gtc ttc gcc cgc aca tcc ccc cag cag aag	2181
Gln Asn His Thr Glu Ile Val Phe Ala Arg Thr Ser Pro Gln Gln Lys	
673 678 683 688	

ctc atc att gtg gag ggc tgt cag aga cag ggt gca att gtg gct gtg	2229
Leu Ile Ile Val Glu Gly Cys Gln Arg Gln Gly Ala Ile Val Ala Val	
689 694 699 704	
acc ggg gat ggt gtg aac gac tcc ccc gct ctg aag aag gcc gac att	2277
Thr Gly Asp Gly Val Asn Asp Ser Pro Ala Leu Lys Lys Ala Asp Ile	
705 710 715 720	
ggg gtg gcc atg ggc atc gct ggc tct gac gtc tcc aag cag gca gct	2325
Gly Val Ala Met Gly Ile Ala Gly Ser Asp Val Ser Lys Gln Ala Ala	
721 726 731 736	
gac atg atc ctg ctg gac gac aac ttt gcc tcc atc gtc aca ggg gtg	2373
Asp Met Ile Leu Leu Asp Asp Asn Phe Ala Ser Ile Val Thr Gly Val	
737 742 747 752	
gag gag ggc cgc ctg atc ttc gac aac cta aag aag tcc att gcc tac	2421
Glu Glu Gly Arg Leu Ile Phe Asp Asn Leu Lys Lys Ser Ile Ala Tyr	
753 758 763 768	
acc ctg acc agc aat atc ccg gag atc acg ccc ttc ctg ctg ttc atc	2469
Thr Leu Thr Ser Asn Ile Pro Glu Ile Thr Pro Phe Leu Leu Phe Ile	
769 774 779 784	
atg gcc aac atc ccg ctg ccc ctg ggc acc atc acc atc ctc tgc atc	2517
Met Ala Asn Ile Pro Leu Pro Leu Gly Thr Ile Thr Ile Leu Cys Ile	
785 790 795 800	
gat ctg ggc act gac atg gtc cct gcc atc tca ctg gcg tac gag gct	2565
Asp Leu Gly Thr Asp Met Val Pro Ala Ile Ser Leu Ala Tyr Glu Ala	
801 806 811 816	
gcc gaa agc gac atc atg aag aga cag ccc agg aac ccg cgg acg gac	2613
Ala Glu Ser Asp Ile Met Lys Arg Gln Pro Arg Asn Pro Arg Thr Asp	
817 822 827 832	
aaa ttg gtc aat gag aga ctc atc agc atg gcc tac ggg cag att gga	2661
Lys Leu Val Asn Glu Arg Leu Ile Ser Met Ala Tyr Gly Gln Ile Gly	
833 838 843 848	
atg atc cag gct ctc ggt ggc ttc ttc tct tac ttt gtg atc ctg gca	2709
Met Ile Gln Ala Leu Gly Gly Phe Phe Ser Tyr Phe Val Ile Leu Ala	
849 854 859 864	
gaa aat ggc ttc ttg ccc ggc aac ctg gtg ggc atc cgg ctg aac tgg	2757
Glu Asn Gly Phe Leu Pro Gly Asn Leu Val Gly Ile Arg Leu Asn Trp	
865 870 875 880	
gat gac cgc acc gtc aat gac ctg gaa gac agt tac ggg cag cag tgg	2805
Asp Asp Arg Thr Val Asn Asp Leu Glu Asp Ser Tyr Gly Gln Gln Trp	
881 886 891 896	
aca tac gag cag agg aag gtg gtg gag ttc acc tgc cac acg gcc ttc	2853
Thr Tyr Glu Gln Arg Lys Val Val Glu Phe Thr Cys His Thr Ala Phe	
897 902 907 912	
ttt gtg agc atc gtt gtc gtc cag tgg gcc gat ctg atc atc tgc aag	2901

gcacgagggcg ccggcccagg cgctggacgg cagcagg atg ggg aag gcg aag gtc	55
Met Gly Lys Ala Lys Val	
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ccc gcc tcc aag cgc gcc ccg agc agc ccc gtg gct aag ccg ggt cct	103
Pro Ala Ser Lys Arg Ala Pro Ser Ser Pro Val Ala Lys Pro Gly Pro	
7 12 17 22	
gtc aag acg ctc act cgg aag aaa aac aag aag aaa aaa agg ttt tgg	151
Val Lys Thr Leu Thr Arg Lys Lys Asn Lys Lys Lys Lys Arg Phe Trp	
23 28 33 38	
aaa agc aag gcg cgg gaa gta agc aag aag cca gca agc ggc ccc ggt	199
Lys Ser Lys Ala Arg Glu Val Ser Lys Lys Pro Ala Ser Gly Pro Gly	
39 44 49 54	
gct gtg gtg cga cct cca aag gca cca gaa gac ttt tct caa aac tgg	247
Ala Val Val Arg Pro Pro Lys Ala Pro Glu Asp Phe Ser Gln Asn Trp	
55 60 65 70	
aag gcg ctg caa gag tgg ctg ctg aaa caa aaa tct cag gcc cca gaa	295
Lys Ala Leu Gln Glu Trp Leu Leu Lys Gln Lys Ser Gln Ala Pro Glu	
71 76 81 86	
aag cct ctt gtc atc tct cag atg ggt tcc aaa aag aag ccc aaa att	343
Lys Pro Leu Val Ile Ser Gln Met Gly Ser Lys Lys Lys Pro Lys Ile	
87 92 97 102	
atc cag caa aac aaa aaa gag acc tcg cct caa gtg aag gga gag gag	391
Ile Gln Gln Asn Lys Lys Glu Thr Ser Pro Gln Val Lys Gly Glu Glu	
103 108 113 118	
atg ccg gca gga aaa gac cag gag gcc agc agg ggc tct gtt cct tca	439
Met Pro Ala Gly Lys Asp Gln Glu Ala Ser Arg Gly Ser Val Pro Ser	
119 124 129 134	
ggg tcc aag atg gac agg agg gcg cca gta cct cgc acc aag gcc agt	487
Gly Ser Lys Met Asp Arg Arg Ala Pro Val Pro Arg Thr Lys Ala Ser	
135 140 145 150	
gga aca gag cac aat aag aaa gga acc aag gaa agg aca aat ggt gat	535
Gly Thr Glu His Asn Lys Lys Gly Thr Lys Glu Arg Thr Asn Gly Asp	
151 156 161 166	
att gtt cca gaa cga ggg gac atc gag cat aag aag cgg aaa gct aag	583
Ile Val Pro Glu Arg Gly Asp Ile Glu His Lys Lys Arg Lys Ala Lys	
167 172 177 182	
gag gca gcc cca gcc cca ccc acc gag gaa gac atc tgg ttt gac gac	631
Glu Ala Ala Pro Ala Pro Pro Thr Glu Glu Asp Ile Trp Phe Asp Asp	
183 188 193 198	
gtg gac cca gcg gat atc gaa gct gcc ata ggt cca gag gcg gcc aag	679
Val Asp Pro Ala Asp Ile Glu Ala Ala Ile Gly Pro Glu Ala Ala Lys	
199 204 209 214	
ata gcg agg aaa cag ttg ggt cag agc gag ggc agc gtc agc ctc agc	727

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Pro Ser Ile Ala Val Cys Trp Phe Val Gly Cys Leu Cys Gly Ser Lys

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Leu Val Ile Asp Trp His Asn Tyr Gly Tyr Ser Ile Met Gly Leu Val

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His Gly Pro Asn His Pro Leu Val Leu Leu Ala Lys Trp Cys Thr Ser

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Gly Leu Val Phe Glu Asp Ser Glu Glu Leu Ala Ala Gln Leu Gln Met																
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<400> 187

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agaccacggg cgaccggagc gcg      atg gct ggg gcg gcg gga ctc acg gca      170
                               Met Ala Gly Ala Ala Gly Leu Thr Ala
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gaa gtg agc tgg aag gtc ttg gag cga aga gct cgg acc aag cgc tca      218
Glu Val Ser Trp Lys Val Leu Glu Arg Arg Ala Arg Thr Lys Arg Ser
 10                               15                               20                               25

ggc tca gtt tat gaa cct ctt aaa agc att aat ctt cca aga cct gat      266
Gly Ser Val Tyr Glu Pro Leu Lys Ser Ile Asn Leu Pro Arg Pro Asp
 26                               31                               36                               41

aat gaa act ctc tgg gat aag ttg gac cat tat tac aga att gtc aag      314
Asn Glu Thr Leu Trp Asp Lys Leu Asp His Tyr Tyr Arg Ile Val Lys
 42                               47                               52                               57

tca aca ttg ctg ctg tat caa agt cca act acc ggt ctc ttt ccc act      362
Ser Thr Leu Leu Leu Tyr Gln Ser Pro Thr Thr Gly Leu Phe Pro Thr
 58                               63                               68                               73

aaa aca tgc ggt ggt gac cag aag gcc aag atc cag gac agc cta tac      410
Lys Thr Cys Gly Gly Asp Gln Lys Ala Lys Ile Gln Asp Ser Leu Tyr
 74                               79                               84                               89

tgc gct gct ggg gcc tgg gct ttg gct ctt gca tac agg cga att gat      458
Cys Ala Ala Gly Ala Trp Ala Leu Ala Leu Ala Tyr Arg Arg Ile Asp
 90                               95                               100                               105

gat gac aag gga agg acc cat gag ctg gag cac tca gct ata aaa tgc      506
Asp Asp Lys Gly Arg Thr His Glu Leu Glu His Ser Ala Ile Lys Cys
106                               111                               116                               121

atg aga gga att ctc tac tgc tat atg cgt cag gcc gat aag gtc cag      554
Met Arg Gly Ile Leu Tyr Cys Tyr Met Arg Gln Ala Asp Lys Val Gln
122                               127                               132                               137

cag ttt aag cag gat cca cgc cca aca aca tgt ctt cac tct gtt ttc      602
Gln Phe Lys Gln Asp Pro Arg Pro Thr Thr Cys Leu His Ser Val Phe
138                               143                               148                               153

aat gtg cat aca gga gat gag ttg ctt tcc tat gag gaa tat ggt cat      650
Asn Val His Thr Gly Asp Glu Leu Leu Ser Tyr Glu Glu Tyr Gly His
154                               159                               164                               169

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att tcc tca gga ctc cag att atc tac aac act gat gag gtc tct ttt	746
Ile Ser Ser Gly Leu Gln Ile Ile Tyr Asn Thr Asp Glu Val Ser Phe	
186 191 196 201	
att caa aac ctt gta ttt tgt gtg gaa aga gtt tac cgt gtg cct gac	794
Ile Gln Asn Leu Val Phe Cys Val Glu Arg Val Tyr Arg Val Pro Asp	
202 207 212 217	
ttt ggt gtc tgg gaa aga gga agc aaa tat aat aat ggc agc aca gag	842
Phe Gly Val Trp Glu Arg Gly Ser Lys Tyr Asn Asn Gly Ser Thr Glu	
218 223 228 233	
cta cat tcg agc tcg gtt ggt tta gca aaa gca gct cta gaa gca att	890
Leu His Ser Ser Ser Val Gly Leu Ala Lys Ala Ala Leu Glu Ala Ile	
234 239 244 249	
aat gga ttc aac ctt ttt ggc aac cag ggc tgt tcg tgg tca gtt ata	938
Asn Gly Phe Asn Leu Phe Gly Asn Gln Gly Cys Ser Trp Ser Val Ile	
250 255 260 265	
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Phe Val Asp Leu Asp Ala His Asn Arg Asn Arg Gln Thr Leu Cys Ser	
266 271 276 281	
ctg tta ccc aga gaa tca aga tca cat aat aca gat gct gcc ctg ctc	1034
Leu Leu Pro Arg Glu Ser Arg Ser His Asn Thr Asp Ala Ala Leu Leu	
282 287 292 297	
ccc tgc atc agt tat cct gca ttt gcc ctg gat gat gaa gtt ctt ttt	1082
Pro Cys Ile Ser Tyr Pro Ala Phe Ala Leu Asp Asp Glu Val Leu Phe	
298 303 308 313	
agc cag aca ctt gat aaa gtg gtt aga aaa tta aaa gga aaa tat gga	1130
Ser Gln Thr Leu Asp Lys Val Val Arg Lys Leu Lys Gly Lys Tyr Gly	
314 319 324 329	
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Phe Lys Arg Phe Leu Arg Asp Gly Tyr Arg Thr Ser Leu Glu Asp Pro	
330 335 340 345	
aac aga tgc tac tac aag cca gct gaa att aag cta ttt gat ggc att	1226
Asn Arg Cys Tyr Tyr Lys Pro Ala Glu Ile Lys Leu Phe Asp Gly Ile	
346 351 356 361	
gaa tgt gaa ttt ccc ata ttt ttc ctt tat atg atg att gat gga gtt	1274
Glu Cys Glu Phe Pro Ile Phe Phe Leu Tyr Met Met Ile Asp Gly Val	
362 367 372 377	
ttt aga ggc aat cct aag caa gta cag gaa tat cag gat ctt ttg act	1322
Phe Arg Gly Asn Pro Lys Gln Val Gln Glu Tyr Gln Asp Leu Leu Thr	
378 383 388 393	

cca gta ctt cat cat acc aca gaa gga tat cct gtt gta cca aag tac	1370
Pro Val Leu His His Thr Thr Glu Gly Tyr Pro Val Val Pro Lys Tyr	
394 399 404 409	
tat tat gtg cca gct gac ttt gta gaa tat gaa aaa aat aac cct ggt	1418
Tyr Tyr Val Pro Ala Asp Phe Val Glu Tyr Glu Lys Asn Asn Pro Gly	
410 415 420 425	
agt caa aaa cga ttt cct agc aac tgt ggc cgt gat gga aaa ctg ttt	1466
Ser Gln Lys Arg Phe Pro Ser Asn Cys Gly Arg Asp Gly Lys Leu Phe	
426 431 436 441	
ctt tgg gga caa gca ctt tat atc atc gca aaa ctg ctg gct gat gaa	1514
Leu Trp Gly Gln Ala Leu Tyr Ile Ile Ala Lys Leu Leu Ala Asp Glu	
442 447 452 457	
ctt att agt cct aaa gac att gat cct gtc cag cgc tat gtc cca cta	1562
Leu Ile Ser Pro Lys Asp Ile Asp Pro Val Gln Arg Tyr Val Pro Leu	
458 463 468 473	
aag gat caa cgt aac gtg agc atg agg ttt tcc aat cag ggc cca ctg	1610
Lys Asp Gln Arg Asn Val Ser Met Arg Phe Ser Asn Gln Gly Pro Leu	
474 479 484 489	
gaa aat gac ttg gta gtt cat gtg gca ctt ata gca gaa agc caa aga	1658
Glu Asn Asp Leu Val Val His Val Ala Leu Ile Ala Glu Ser Gln Arg	
490 495 500 505	
ctt caa gtt ttt ctg aac aca tat ggt att caa act caa act cct caa	1706
Leu Gln Val Phe Leu Asn Thr Tyr Gly Ile Gln Thr Gln Thr Pro Gln	
506 511 516 521	
caa gta gaa ccc att cag ata tgg cct cag cag gag ctt gtg aaa gct	1754
Gln Val Glu Pro Ile Gln Ile Trp Pro Gln Gln Glu Leu Val Lys Ala	
522 527 532 537	
tat ttg cag ctg ggt atc aat gaa aag tta gga ctc tct gga agg cca	1802
Tyr Leu Gln Leu Gly Ile Asn Glu Lys Leu Gly Leu Ser Gly Arg Pro	
538 543 548 553	
gac agg ccc att ggc tgc ctc ggg aca tca aag att tat cgc att cta	1850
Asp Arg Pro Ile Gly Cys Leu Gly Thr Ser Lys Ile Tyr Arg Ile Leu	
554 559 564 569	
gga aag act gtg gtt tgt tac ccg att att ttc gac cta agt gat ttc	1898
Gly Lys Thr Val Val Cys Tyr Pro Ile Ile Phe Asp Leu Ser Asp Phe	
570 575 580 585	
tac atg tct cag gat gtt ttc ctg ctg ata gat gac ata aag aat gcg	1946
Tyr Met Ser Gln Asp Val Phe Leu Leu Ile Asp Asp Ile Lys Asn Ala	
586 591 596 601	
ctg cag ttc att aaa caa tat tgg aaa atg cat gga cgt cca ctt ttc	1994
Leu Gln Phe Ile Lys Gln Tyr Trp Lys Met His Gly Arg Pro Leu Phe	
602 607 612 617	
ctt gtt ctc atc cgg gaa gac aat ata aga ggt agc cgg ttc aac ccc	2042

Leu Val Leu Ile Arg	Glu Asp Asn Ile Arg	Gly Ser Arg Phe Asn Pro	
618	623	628	633
ata tta gat atg ctg	gca gcc ctt aaa aaa	gga ata att gga gga gtc	2090
Ile Leu Asp Met Leu	Ala Ala Leu Lys Lys	Gly Ile Ile Gly Gly Val	
634	639	644	649
aaa gtt cat gtg gat	cgt cta cag aca cta	ata tct gga gct gtg gta	2138
Lys Val His Val Asp	Arg Leu Gln Thr Leu	Ile Ser Gly Ala Val Val	
650	655	660	665
gaa caa ctt gat ttc	cta cga atc agt gac	aca gaa gag ctt cca gaa	2186
Glu Gln Leu Asp Phe	Leu Arg Ile Ser Asp	Thr Glu Glu Leu Pro Glu	
666	671	676	681
ttt aag agt ttt gag	gaa cta gaa cct ccc	aaa cat tca aaa gtc aaa	2234
Phe Lys Ser Phe Glu	Glu Leu Glu Pro Pro	Lys His Ser Lys Val Lys	
682	687	692	697
cgg caa agc agc acc	cct agt gct cct gaa	ctg gga cag cag ccg gat	2282
Arg Gln Ser Ser Thr	Pro Ser Ala Pro Glu	Leu Gly Gln Gln Pro Asp	
698	703	708	713
gtc aac att agt gaa	tgg aag gac aaa ccc	acc cac gaa att ctt caa	2330
Val Asn Ile Ser Glu	Trp Lys Asp Lys Pro	Thr His Glu Ile Leu Gln	
714	719	724	729
aaa ctg aat gat tgc	agt tgt ctg gct agc	caa gcc atc ctg ctg ggt	2378
Lys Leu Asn Asp Cys	Ser Cys Leu Ala Ser	Gln Ala Ile Leu Leu Gly	
730	735	740	745
ata ctg ctc aaa aga	gaa ggc ccc aac ttc	atc aca aag gaa ggt acc	2426
Ile Leu Leu Lys Arg	Glu Gly Pro Asn Phe	Ile Thr Lys Glu Gly Thr	
746	751	756	761
gtt tct gat cac att	gag aga gtc tat aga	aga gct ggc agc caa aaa	2474
Val Ser Asp His Ile	Glu Arg Val Tyr Arg	Arg Ala Gly Ser Gln Lys	
762	767	772	777
ctt tgg ttg gcg gtg	cgc tac ggg gct gca	ttt acc cag aaa ttt tct	2522
Leu Trp Leu Ala Val	Arg Tyr Gly Ala Ala	Phe Thr Gln Lys Phe Ser	
778	783	788	793
tcc tct ata gcc cca	cac att act act ttt	ctg gta cat ggg aaa cag	2570
Ser Ser Ile Ala Pro	His Ile Thr Thr Phe	Leu Val His Gly Lys Gln	
794	799	804	809
gta act ctg ggt gcc	ttt ggg cat gaa gaa	gaa gtt atc tct aat cct	2618
Val Thr Leu Gly Ala	Phe Gly His Glu Glu	Glu Val Ile Ser Asn Pro	
810	815	820	825
ttg tct cca aga gtg	att caa aac atc atc	tat tat aag tgt aac acc	2666
Leu Ser Pro Arg Val	Ile Gln Asn Ile Ile	Tyr Tyr Lys Cys Asn Thr	
826	831	836	841
cat gat gag agg gaa	gcg gtc att cag caa	gaa ctg gtc atc cat att	2714
His Asp Glu Arg Glu	Ala Val Ile Gln Gln	Glu Leu Val Ile His Ile	

842	847	852	857	
ggc tgg atc atc tcc aat aac cct gag tta ttc agt ggc acg ctg aaa				2762
Gly Trp Ile Ile Ser Asn Asn Pro Glu Leu Phe Ser Gly Thr Leu Lys				
858	863	868	873	
ata cga atc ggg tgg atc atc cat gcc atg gag tat gaa ctt cag atc				2810
Ile Arg Ile Gly Trp Ile Ile His Ala Met Glu Tyr Glu Leu Gln Ile				
874	879	884	889	
cgt ggc gga gac aag cca gcc ttg gac ttg tat cag ctg tca cct agt				2858
Arg Gly Gly Asp Lys Pro Ala Leu Asp Leu Tyr Gln Leu Ser Pro Ser				
890	895	900	905	
gaa gtt aaa cag ctt ctg ctg ggt ata ctg cag cct caa cag aat gga				2906
Glu Val Lys Gln Leu Leu Leu Gly Ile Leu Gln Pro Gln Gln Asn Gly				
906	911	916	921	
aga tgt tgg ctg aac agg cgt cag atc gat ggg tct ttg aat aga act				2954
Arg Cys Trp Leu Asn Arg Arg Gln Ile Asp Gly Ser Leu Asn Arg Thr				
922	927	932	937	
ccc acc ggg ttc tat gac cga gtg tgg cag att ctg gag cgc acg ccc				3002
Pro Thr Gly Phe Tyr Asp Arg Val Trp Gln Ile Leu Glu Arg Thr Pro				
938	943	948	953	
aat ggg atc att gtt gct ggg aag cat ttg cct cag caa cca acc ctg				3050
Asn Gly Ile Ile Val Ala Gly Lys His Leu Pro Gln Gln Pro Thr Leu				
954	959	964	969	
tca gat atg acc atg tat gag atg aat ttc tct ctc ctt gtt gaa gac				3098
Ser Asp Met Thr Met Tyr Glu Met Asn Phe Ser Leu Leu Val Glu Asp				
970	975	980	985	
acg ttg gga aat att gac cag cca cag tac aga cag atc gtt gta gag				3146
Thr Leu Gly Asn Ile Asp Gln Pro Gln Tyr Arg Gln Ile Val Val Glu				
986	991	996	1001	
tta ctt atg gtt gta tcc att gta ctg gaa aga aac ccc gag cta gaa				3194
Leu Leu Met Val Val Ser Ile Val Leu Glu Arg Asn Pro Glu Leu Glu				
1002	1007	1012	1017	
ttt caa gac aaa gta gat cta gac aga ctg gtc aaa gaa gca ttt aat				3242
Phe Gln Asp Lys Val Asp Leu Asp Arg Leu Val Lys Glu Ala Phe Asn				
1018	1023	1028	1033	
gaa ttt caa aaa gat cag agt cgg cta aag gaa att gaa aaa caa gat				3290
Glu Phe Gln Lys Asp Gln Ser Arg Leu Lys Glu Ile Glu Lys Gln Asp				
1034	1039	1044	1049	
gac atg act tcc ttt tac aac act cct ccc ctg gga aaa aga gga aca				3338
Asp Met Thr Ser Phe Tyr Asn Thr Pro Pro Leu Gly Lys Arg Gly Thr				
1050	1055	1060	1065	
tgc agc tat ttg aca aag gcg gtg atg aat ctg ctg ctg gaa gga gaa				3386
Cys Ser Tyr Leu Thr Lys Ala Val Met Asn Leu Leu Leu Glu Gly Glu				
1066	1071	1076	1081	

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 Val Lys Pro Asn Asn Asp Asp Pro Cys Leu Ile Ser *
 1082 / 1087 1092

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tatttttaggt tcagggatac atgtataggt ttgttataaa gataaactcg tgttattctg	540
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	Met
	1
gcc aac ccc act gtg ttc ttc aac att gca att gat agt gag tcc ttg	645
Ala Asn Pro Thr Val Phe Phe Asn Ile Ala Ile Asp Ser Glu Ser Leu	
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Gly Cys Ile Ser Phe Lys Leu Phe Ala Asp Lys Val Leu Lys Met Glu	
18 23 28 33	
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Glu Asn Phe Cys Ala Leu Asn Thr Gly Glu Lys Val Phe Gly Asp Lys	
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ggg ccc tgc ttt tac aga att att ccg ggg tgt tgt cag ggt ggt gac	789
Gly Pro Cys Phe Tyr Arg Ile Ile Pro Gly Cys Cys Gln Gly Gly Asp	
50 55 60 65	
ttc aca cac cat aat ggc act ggt ggc aag tcc ctc tac agc aag gaa	837
Phe Thr His His Asn Gly Thr Gly Gly Lys Ser Leu Tyr Ser Lys Glu	
66 71 76 81	
ttt gat gat gag aac ttc atc cta aag cat aca gct cct ggc gtc ttg	885
Phe Asp Asp Glu Asn Phe Ile Leu Lys His Thr Ala Pro Gly Val Leu	
82 87 92 97	
tcc acg gca aat gct gga ccc acc aca aat ggt tcc cag ttt ttc atc	933
Ser Thr Ala Asn Ala Gly Pro Thr Thr Asn Gly Ser Gln Phe Phe Ile	
98 103 108 113	
tgt act gcc aag aca gag gat gga tgc cag cat gtg gtc ttt ggc aag	981
Cys Thr Ala Lys Thr Glu Asp Gly Cys Gln His Val Val Phe Gly Lys	
114 119 124 129	
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Val Lys Asp Gly Met Ser Ile Val Glu Ala Leu Glu Arg Ser Gly Ser	
130 135 140 145	

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 Arg Asn Gly Lys Thr Ser Lys Lys Ile Thr Ala Ala Asn Cys Gly Gln
 146 151 156 161

ctc taa taaatttgat tgttttatct gaaccaccag atcgttcctt ctatagctca 1133
 Leu *
 162

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acagcacccg gtaactgcga gtggagcgga ggacccgagc ggctgaggag agaggagggc 180

gcggcttagc tgctacgggg tccggccggc gccctcccga gggggggtca ggaggaggaa 240

ggaggacccg tgcgaga atg cct ctg ccc tgg agc ctt gcg ctc ccg ctg 290
 Met Pro Leu Pro Trp Ser Leu Ala Leu Pro Leu
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ctg ctc tcc tgg gtg gca ggt ggt ttc ggg aac gcg gcc agt gca agg 338
 Leu Leu Ser Trp Val Ala Gly Gly Phe Gly Asn Ala Ala Ser Ala Arg
 12 17 22 27

cat cac ggg ttg tta gca tcg gca cgt cag cct ggg gtc tgt cac tat 386
 His His Gly Leu Leu Ala Ser Ala Arg Gln Pro Gly Val Cys His Tyr
 28 33 38 43

gga act aaa ctg gcc tgc tgc tac ggc tgg aga aga aac agc aag gga 434

Gly	Thr	Lys	Leu	Ala	Cys	Cys	Tyr	Gly	Trp	Arg	Arg	Asn	Ser	Lys	Gly	
44					49					54					59	
gtc	tgt	gaa	gct	aca	tgc	gaa	cct	gga	tgt	aag	ttt	ggg	gag	tgc	gtg	482
Val	Cys	Glu	Ala	Thr	Cys	Glu	Pro	Gly	Cys	Lys	Phe	Gly	Glu	Cys	Val	
60					65					70					75	
gga	cca	aac	aaa	tgc	aga	tgc	ttt	cca	gga	tac	acc	ggg	aaa	acc	tgc	530
Gly	Pro	Asn	Lys	Cys	Arg	Cys	Phe	Pro	Gly	Tyr	Thr	Gly	Lys	Thr	Cys	
76					81					86					91	
agt	caa	gat	gtg	aat	gag	tgt	gga	atg	aaa	ccc	cgg	cca	tgc	caa	cac	578
Ser	Gln	Asp	Val	Asn	Glu	Cys	Gly	Met	Lys	Pro	Arg	Pro	Cys	Gln	His	
92					97					102					107	
aga	tgt	gtg	aat	aca	cac	gga	agc	tac	aag	tgc	ttt	tgc	ctc	agt	ggc	626
Arg	Cys	Val	Asn	Thr	His	Gly	Ser	Tyr	Lys	Cys	Phe	Cys	Leu	Ser	Gly	
108					113					118					123	
cac	atg	ctc	atg	cca	gat	gct	acg	tgt	gtg	aac	tct	agg	aca	tgt	gcc	674
His	Met	Leu	Met	Pro	Asp	Ala	Thr	Cys	Val	Asn	Ser	Arg	Thr	Cys	Ala	
124					129					134					139	
atg	ata	aac	tgt	cag	tac	agc	tgt	gaa	gac	aca	gaa	gaa	ggg	cca	cag	722
Met	Ile	Asn	Cys	Gln	Tyr	Ser	Cys	Glu	Asp	Thr	Glu	Glu	Gly	Pro	Gln	
140					145					150					155	
tgc	ctg	tgt	cca	tcc	tca	gga	ctc	cgc	ctg	gcc	cca	aat	gga	aga	gac	770
Cys	Leu	Cys	Pro	Ser	Ser	Gly	Leu	Arg	Leu	Ala	Pro	Asn	Gly	Arg	Asp	
156					161					166					171	
tgt	cta	gat	att	gat	gaa	tgt	gcc	tct	ggg	aaa	gtc	atc	tgt	ccc	tac	818
Cys	Leu	Asp	Ile	Asp	Glu	Cys	Ala	Ser	Gly	Lys	Val	Ile	Cys	Pro	Tyr	
172					177					182					187	
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Ile	Asn	Glu	Cys	Thr	Met	Asp	Ser	His	Thr	Cys	Ser	His	His	Ala	Asn	
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Lys	Gly	Asn	Gly	Leu	Arg	Cys	Ser	Ala	Ile	Pro	Glu	Asn	Ser	Val	Lys	
252					257					262					267	
gaa	gtc	ctc	aga	gca	cct	ggg	acc	atc	aaa	gac	aga	atc	aag	aag	ttg	1106
Glu	Val	Leu	Arg	Ala	Pro	Gly	Thr	Ile	Lys	Asp	Arg	Ile	Lys	Lys	Leu	

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Asp Val Phe Ser Arg Phe Gly Ile Glu Ile Ile Lys Trp Ala Gly Phe							
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His Thr Ile Lys Asp Asp Ile Lys Phe Ser Gln Leu Phe Gln Thr Leu							
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Arg Leu Leu Lys Ser Val Thr Pro Leu Leu Met Ala Cys Asn Ala Tyr							
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Leu Ala Leu Glu Thr Thr Asn Ser Leu Cys Arg Lys Ser Leu Ala Leu							
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acggggggttc agggaaatatt tactgggcct ctccgctccc tctgctcttg gaggtgcc 178
atg agg tca gtt agc tac gtg cag cgc gtg gcg ctg gag ttc agc ggg 226
Met Arg Ser Val Ser Tyr Val Gln Arg Val Ala Leu Glu Phe Ser Gly
1 5 10 15
agc ctc ttc ccg cac gca atc tgc ctc gga gac gtt gat aac gat acg 274
Ser Leu Phe Pro His Ala Ile Cys Leu Gly Asp Val Asp Asn Asp Thr
17 22 27 32
tta aat gaa ctg gtg gtg gga gac acc agc ggg aag gtg tct gtg tat 322
Leu Asn Glu Leu Val Val Gly Asp Thr Ser Gly Lys Val Ser Val Tyr
33 38 43 48
aaa aat gat gac agt cgg cca tgg ctc acc tgt tcc tgc cag gga atg 370
Lys Asn Asp Asp Ser Arg Pro Trp Leu Thr Cys Ser Cys Gln Gly Met
49 54 59 64
ctg act tgc gtt ggg gtt gga gac gtg tgt aat aaa gga aag aac ctg 418
Leu Thr Cys Val Gly Val Gly Asp Val Cys Asn Lys Gly Lys Asn Leu
65 70 75 80
ttg gtg gca gtg agt gct gaa ggc tgg ttt cat ttg ttt gac ctg aca 466
Leu Val Ala Val Ser Ala Glu Gly Trp Phe His Leu Phe Asp Leu Thr

81	86	91	96	
cct gcc aag gtg ttg gat gct tct ggg cac cac gag aca cta atc gga				514
Pro Ala Lys Val Leu Asp Ala Ser Gly His His Glu Thr Leu Ile Gly				
97	102	107	112	
gag gag cag cgt cca gtc ttc aag cag cac atc cct gcc aac acc aag				562
Glu Glu Gln Arg Pro Val Phe Lys Gln His Ile Pro Ala Asn Thr Lys				
113	118	123	128	
gtc atg ctg atc agc gac atc gat gga gat ggg tgt cgt gag ctg gtg				610
Val Met Leu Ile Ser Asp Ile Asp Gly Asp Gly Cys Arg Glu Leu Val				
129	134	139	144	
gtg ggc tac aca gac cgt gtg gtg cga gct ttc cgc tgg gag gag cta				658
Val Gly Tyr Thr Asp Arg Val Val Arg Ala Phe Arg Trp Glu Glu Leu				
145	150	155	160	
ggt gag ggt cct gaa cat ctg aca ggg cag ctg gtg tcc ctc aag aaa				706
Gly Glu Gly Pro Glu His Leu Thr Gly Gln Leu Val Ser Leu Lys Lys				
161	166	171	176	
tgg atg ctg gag ggt cag gtg gac agc ctc tca gtg act ctg ggg cca				754
Trp Met Leu Glu Gly Gln Val Asp Ser Leu Ser Val Thr Leu Gly Pro				
177	182	187	192	
ctg ggt ctt cct gaa ctg atg gtg tct cag cca ggt tgt gcg tat gca				802
Leu Gly Leu Pro Glu Leu Met Val Ser Gln Pro Gly Cys Ala Tyr Ala				
193	198	203	208	
att cta ctg tgt acc tgg aaa aag gac act ggg tcc cct cct gcc tct				850
Ile Leu Leu Cys Thr Trp Lys Lys Asp Thr Gly Ser Pro Pro Ala Ser				
209	214	219	224	
gaa ggg ccc acg gat ggt agt agg gag acc cca gct gcc cga gac gtg				898
Glu Gly Pro Thr Asp Gly Ser Arg Glu Thr Pro Ala Ala Arg Asp Val				
225	230	235	240	
gtg ctg cac cag aca tct ggc cgt atc cac aac aag aat gtc tcc act				946
Val Leu His Gln Thr Ser Gly Arg Ile His Asn Lys Asn Val Ser Thr				
241	246	251	256	
cac cta att ggc aac atc aaa caa ggc cac ggc act gag agt agt ggc				994
His Leu Ile Gly Asn Ile Lys Gln Gly His Gly Thr Glu Ser Ser Gly				
257	262	267	272	
tct ggc ctc ttt gcc ctg tgc acc ctg gat ggg aca ctg aag ctc atg				1042
Ser Gly Leu Phe Ala Leu Cys Thr Leu Asp Gly Thr Leu Lys Leu Met				
273	278	283	288	
gaa gaa atg gaa gaa gca gac aag ctg ctg tgg tca gtg cag gtg gat				1090
Glu Glu Met Glu Glu Ala Asp Lys Leu Leu Trp Ser Val Gln Val Asp				
289	294	299	304	
cac cag ctc ttt gcc ctg gag aaa ctg gat gtc acc ggc aac ggg cat				1138
His Gln Leu Phe Ala Leu Glu Lys Leu Asp Val Thr Gly Asn Gly His				
305	310	315	320	

gag gag gta gtt gca tgc gcc tgg gat gga cag aca tat atc att gat	1186
Glu Glu Val Val Ala Cys Ala Trp Asp Gly Gln Thr Tyr Ile Ile Asp	
321 326 331 336	
cac aac cgc acc gtc gtc cgc ttc caa gtg gat gaa aat atc cgt gcc	1234
His Asn Arg Thr Val Val Arg Phe Gln Val Asp Glu Asn Ile Arg Ala	
337 342 347 352	
ttc tgt gca ggc ctg tac gcc tgc aaa gag ggc cgc aac agc ccc tgc	1282
Phe Cys Ala Gly Leu Tyr Ala Cys Lys Glu Gly Arg Asn Ser Pro Cys	
353 358 363 368	
ctc gta tat gtc act ttc aac cag aag atc tat gtg tac tgg gag gtg	1330
Leu Val Tyr Val Thr Phe Asn Gln Lys Ile Tyr Val Tyr Trp Glu Val	
369 374 379 384	
cag ctg gag cgg atg gag tct acc aat ctg gtg aaa ctg ctg gag acc	1378
Gln Leu Glu Arg Met Glu Ser Thr Asn Leu Val Lys Leu Leu Glu Thr	
385 390 395 400	
aag ccg gag tac cac agc ctg ctg cag gag ctg ggc gtg gat cct gac	1426
Lys Pro Glu Tyr His Ser Leu Leu Gln Glu Leu Gly Val Asp Pro Asp	
401 406 411 416	
gac ctc cct gtg act cgt gcc ctg ctt cac caa acg ctc tac cat cca	1474
Asp Leu Pro Val Thr Arg Ala Leu Leu His Gln Thr Leu Tyr His Pro	
417 422 427 432	
gac cag cca cca cag tgt gct ccc tca agc ctc cag gat ccc acc tag	1522
Asp Gln Pro Pro Gln Cys Ala Pro Ser Ser Leu Gln Asp Pro Thr *	
433 438 443 448	
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ggacgcagag agaaaacgcac atggggagaa cgccacgtga aggctgaggt cgggataatg	1702
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cgtggaacag accctgcctt acagctgtca gaaggaacca accctgcca caccttctg	1822
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Met Glu Pro Gln Glu Glu Arg Glu Thr Gln	
1 5	
gtt gct gcg tgg tta aaa aaa ata ttt gga gat cat cct att cca cag	159
Val Ala Ala Trp Leu Lys Lys Ile Phe Gly Asp His Pro Ile Pro Gln	
11 16 21 26	
tat gag gtg aac cca cgg acc aca gag att tta cat cac ctt tca gaa	207
Tyr Glu Val Asn Pro Arg Thr Thr Glu Ile Leu His His Leu Ser Glu	
27 32 37 42	
cgc aac agg gtc cgg gac agg gat gtc tac ctg gta ata gag gac ttg	255
Arg Asn Arg Val Arg Asp Arg Asp Val Tyr Leu Val Ile Glu Asp Leu	
43 48 53 58	
aag cag aaa gca agt gaa tac gag tca gaa gcc aag tat ctt caa gac	303
Lys Gln Lys Ala Ser Glu Tyr Glu Ser Glu Ala Lys Tyr Leu Gln Asp	
59 64 69 74	
ctt ctc atg gag agt gtg aat ttt tcc ccc gcc aat ctc tct agc act	351
Leu Leu Met Glu Ser Val Asn Phe Ser Pro Ala Asn Leu Ser Ser Thr	
75 80 85 90	
ggg tcc agg tat ctg aat gct ttg gtt gac agt gcg gtg gcc ctt gaa	399
Gly Ser Arg Tyr Leu Asn Ala Leu Val Asp Ser Ala Val Ala Leu Glu	
91 96 101 106	
aca aag gat acc tcg cta gct agt ttt atc cct gca gtg aat gat ttg	447
Thr Lys Asp Thr Ser Leu Ala Ser Phe Ile Pro Ala Val Asn Asp Leu	
107 112 117 122	
acc tct gat ctc ttt cgt acc aaa tcc aaa agt gaa gaa atc aag att	495
Thr Ser Asp Leu Phe Arg Thr Lys Ser Lys Ser Glu Glu Ile Lys Ile	
123 128 133 138	
gaa ctg gaa aaa ctt gaa aaa aat tta act gca act tta gta tta gaa	543
Glu Leu Glu Lys Leu Glu Lys Asn Leu Thr Ala Thr Leu Val Leu Glu	
139 144 149 154	
aaa tgt cta caa gag gat gtc aag aaa gca gag ttg cat ctg tct aca	591
Lys Cys Leu Gln Glu Asp Val Lys Lys Ala Glu Leu His Leu Ser Thr	
155 160 165 170	
gaa agg gcc aaa gtt gat aat cgt cgt cag aac atg gac ttt cta aaa	639
Glu Arg Ala Lys Val Asp Asn Arg Arg Gln Asn Met Asp Phe Leu Lys	
171 176 181 186	
gca aag tca gag gaa ttc aga ttt gga atc aag gct gca gag gag caa	687
Ala Lys Ser Glu Glu Phe Arg Phe Gly Ile Lys Ala Ala Glu Glu Gln	
187 192 197 202	

37	42	47	52	
aac caa aag ttg tta	cag gct gga gag gaa	aac cag gtc ctg gag ttg		306
Asn Gln Lys Leu Leu	Gln Ala Gly Glu Glu	Asn Gln Val Leu Glu Leu		
53	58	63	68	
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tta att cac cga gat	ggg gaa ttt caa gaa	cta atg aaa ttg gca ctt		354
Leu Ile His Arg Asp	Gly Glu Phe Gln Glu	Leu Met Lys Leu Ala Leu		
69	74	79	84	
aat cag gga aaa att	cat cat gaa atg caa	gtt tta gaa aaa gaa gta		402
Asn Gln Gly Lys Ile	His His Glu Met Gln	Val Leu Glu Lys Glu Val		
85	90	95	100	
gag aag aga gac agt	gat att cag cag cta	caa aaa cag cta aag gaa		450
Glu Lys Arg Asp Ser	Asp Ile Gln Gln Leu	Gln Lys Gln Leu Lys Glu		
101	106	111	116	
gca gaa caa ata ctg	gca aca gct gtt tac	caa gcg aag gag aaa ctc		498
Ala Glu Gln Ile Leu	Ala Thr Ala Val Tyr	Gln Ala Lys Glu Lys Leu		
117	122	127	132	
aag tca ata gaa aaa	gca aga aaa ggt gct	atc tcc tct gaa gaa ata		546
Lys Ser Ile Glu Lys	Ala Arg Lys Gly Ala	Ile Ser Ser Glu Glu Ile		
133	138	143	148	
att aag tat gca cat	agg atc agt gca agt	aat gct gta tgt gct cca		594
Ile Lys Tyr Ala His	Arg Ile Ser Ala Ser	Asn Ala Val Cys Ala Pro		
149	154	159	164	
ctg acc tgg gtt cca	ggg gac ccc cgg aga	ccc tac cca act gat tta		642
Leu Thr Trp Val Pro	Gly Asp Pro Arg Arg	Pro Tyr Pro Thr Asp Leu		
165	170	175	180	
gag atg aga agt ggg	tta ctg ggt cag atg	aac aat cct tcc act aat		690
Glu Met Arg Ser Gly	Leu Leu Gly Gln Met	Asn Asn Pro Ser Thr Asn		
181	186	191	196	
ggc gtg aat ggc cat	tta cca gga gat gca	ctt gca gca gga aga ttg		738
Gly Val Asn Gly His	Leu Pro Gly Asp Ala	Leu Ala Ala Gly Arg Leu		
197	202	207	212	
cca gat gtc ctt gct	cca cag tat cca tgg	cag tca aat gac atg tcg		786
Pro Asp Val Leu Ala	Pro Gln Tyr Pro Trp	Gln Ser Asn Asp Met Ser		
213	218	223	228	
atg aat atg tta cca	cca aat cat agt agt	gac ttt ttg ttg gaa cct		834
Met Asn Met Leu Pro	Pro Asn His Ser Ser	Asp Phe Leu Leu Glu Pro		
229	234	239	244	
cct ggg cat aat aaa	gaa aat gaa gat gat	gta gag att atg tca acg		882
Pro Gly His Asn Lys	Glu Asn Glu Asp Asp	Val Glu Ile Met Ser Thr		
245	250	255	260	
gac tcc tca agc agt	agt agt gag tct gat	tga aaaacctt aaaagacaat		933
Asp Ser Ser Ser Ser	Ser Ser Glu Ser Asp	*		
261	266	271		

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 tggccaggac atcggtgacc cgccaatccg gt atg gac gac tgg aag ccc agc 173
 Met Asp Asp Trp Lys Pro Ser
 1 5
 ccc ctc atc aag ccc ttt ggg gct cgg aag aag cgg agc tgg tac ctt 221
 Pro Leu Ile Lys Pro Phe Gly Ala Arg Lys Lys Arg Ser Trp Tyr Leu
 8 13 18 23
 acc tgg aag tat aaa ctg aca aac cag cgg gcc ctg cgg aga ttc tgt 269
 Thr Trp Lys Tyr Lys Leu Thr Asn Gln Arg Ala Leu Arg Arg Phe Cys
 24 29 34 39
 cag aca ggg gcc gtg ctt ttc ctg ctg gtg act gtc att gtc aat atc 317
 Gln Thr Gly Ala Val Leu Phe Leu Leu Val Thr Val Ile Val Asn Ile
 40 45 50 55
 aag ttg atc ctg gac act cgg cga gcc atc agt gaa gcc aat gaa gac 365
 Lys Leu Ile Leu Asp Thr Arg Arg Ala Ile Ser Glu Ala Asn Glu Asp
 56 61 66 71

cca gag cca gag caa gac tat gat gag gcc cta ggc cgc ctg gag ccc	413
Pro Glu Pro Glu Gln Asp Tyr Asp Glu Ala Leu Gly Arg Leu Glu Pro	
72 77 82 87	
cca cgg cgc aga ggc agt ggt ccc cgg cgg gtc ctg gac gta gag gtg	461
Pro Arg Arg Arg Gly Ser Gly Pro Arg Arg Val Leu Asp Val Glu Val	
88 93 98 103	
tat tca agt cgc agc aaa gta tat gtg gca gtg gat ggc acc acg gtg	509
Tyr Ser Ser Arg Ser Lys Val Tyr Val Ala Val Asp Gly Thr Thr Val	
104 109 114 119	
ctg gag gat gag gcc cgg gag cag ggc cgg ggc atc cat gtc att gtc	557
Leu Glu Asp Glu Ala Arg Glu Gln Gly Arg Gly Ile His Val Ile Val	
120 125 130 135	
ctc aac cag gcc acg ggc cac gtg atg gca aaa cgt gtg ttt gac acg	605
Leu Asn Gln Ala Thr Gly His Val Met Ala Lys Arg Val Phe Asp Thr	
136 141 146 151	
tac tca cct cat gag gat gag gcc atg gtg cta ttc ctc aac atg gta	653
Tyr Ser Pro His Glu Asp Glu Ala Met Val Leu Phe Leu Asn Met Val	
152 157 162 167	
gcg ccc ggc cga gtg ctc atc tgc act gtc aag gat gag ggc tcc ttc	701
Ala Pro Gly Arg Val Leu Ile Cys Thr Val Lys Asp Glu Gly Ser Phe	
168 173 178 183	
cac ctc aag gac aca gcc aag gct ctg ctg agg agc ctg ggc agc cag	749
His Leu Lys Asp Thr Ala Lys Ala Leu Leu Arg Ser Leu Gly Ser Gln	
184 189 194 199	
gct ggc cct gcc ctg ggc tgg agg gac aca tgg gcc ttc gtg gga cga	797
Ala Gly Pro Ala Leu Gly Trp Arg Asp Thr Trp Ala Phe Val Gly Arg	
200 205 210 215	
aaa gga ggt cct gtc ttc ggg gag aaa cat tct aaa tca cct gcc ctc	845
Lys Gly Gly Pro Val Phe Gly Glu Lys His Ser Lys Ser Pro Ala Leu	
216 221 226 231	
tct tcc tgg ggg gac cca gtc ctg ctg aag aca gat gtg cca ttg agc	893
Ser Ser Trp Gly Asp Pro Val Leu Leu Lys Thr Asp Val Pro Leu Ser	
232 237 242 247	
tca gca gaa gag gca gag tgc cac tgg gca gac aca gag ctg aac cgt	941
Ser Ala Glu Glu Ala Glu Cys His Trp Ala Asp Thr Glu Leu Asn Arg	
248 253 258 263	
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Arg Arg Arg Arg Phe Cys Ser Lys Val Glu Gly Tyr Gly Ser Val Cys	
264 269 274 279	
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280 285 290 295	

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296 301 306 311	
ccc aat tac ctg tac agg atg ctg cgc tct ctg ctt tca gcc cag ggg	1133
Pro Asn Tyr Leu Tyr Arg Met Leu Arg Ser Leu Leu Ser Ala Gln Gly	
312 317 322 327	
gtg tct cct cag atg ata aca gtt ttc att gac ggc tac tat gag gaa	1181
Val Ser Pro Gln Met Ile Thr Val Phe Ile Asp Gly Tyr Tyr Glu Glu	
328 333 338 343	
ccc atg gat gtg gtg gca ctg ttt ggt ctg agg ggc atc cag cat act	1229
Pro Met Asp Val Val Ala Leu Phe Gly Leu Arg Gly Ile Gln His Thr	
344 349 354 359	
ccc atc agc atc aag aat gcc cgc gtg tct cag cac tac aag gcc agc	1277
Pro Ile Ser Ile Lys Asn Ala Arg Val Ser Gln His Tyr Lys Ala Ser	
360 365 370 375	
ctc act gcc act ttc aac ctg ttt ccg gag gcc aag ttt gct gtg gtt	1325
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ctg gaa gag gac ctg gac att gct gtg gat ttt ttc agt ttc ctg agc	1373
Leu Glu Glu Asp Leu Asp Ile Ala Val Asp Phe Phe Ser Phe Leu Ser	
392 397 402 407	
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Gln Ser Ile His Leu Leu Glu Glu Asp Asp Ser Leu Tyr Cys Ile Ser	
408 413 418 423	
gcc tgg aat gac cag ggg tat gaa cac acg gct gag gac cca gca cta	1469
Ala Trp Asn Asp Gln Gly Tyr Glu His Thr Ala Glu Asp Pro Ala Leu	
424 429 434 439	
ctg tac cgt gtg gag acc atg cct ggg ctg ggc tgg gtg ctc agg agg	1517
Leu Tyr Arg Val Glu Thr Met Pro Gly Leu Gly Trp Val Leu Arg Arg	
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Ser Leu Tyr Lys Glu Glu Leu Glu Pro Lys Trp Pro Thr Pro Glu Lys	
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Leu Trp Asp Trp Asp Met Trp Met Arg Met Pro Glu Gln Arg Arg Gly	
472 477 482 487	
cga gag tgc atc atc cct gac gtt tcc cga tcc tac cac ttt ggc atc	1661
Arg Glu Cys Ile Ile Pro Asp Val Ser Arg Ser Tyr His Phe Gly Ile	
488 493 498 503	
gtc ggc ctc aac atg aat ggc tac ttt cac gag gcc tac ttc aag aag	1709
Val Gly Leu Asn Met Asn Gly Tyr Phe His Glu Ala Tyr Phe Lys Lys	
504 509 514 519	
cac aag ttc aac acg gtt cca ggt gtc cag ctc agg aat gtg gac agt	1757

His Lys Phe Asn Thr Val Pro Gly Val Gln Leu Arg Asn Val Asp Ser	
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Leu Lys Lys Glu Ala Tyr Glu Val Glu Val His Arg Leu Leu Ser Glu	
536 541 546 551	
gct gag gtt ctg gac cac agc aag aac cct tgt gaa gac tct ttc ctg	1853
Ala Glu Val Leu Asp His Ser Lys Asn Pro Cys Glu Asp Ser Phe Leu	
552 557 562 567	
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568 573 578 583	
gat gat gac ttc acc acc tgg acc cag ctt gcc aag tgc ctc cat atc	1949
Asp Asp Asp Phe Thr Thr Trp Thr Gln Leu Ala Lys Cys Leu His Ile	
584 589 594 599	
tgg gac ctg gat gtg cgt ggc aac cat cgg ggc ctg tgg aga ttg ttt	1997
Trp Asp Leu Asp Val Arg Gly Asn His Arg Gly Leu Trp Arg Leu Phe	
600 605 610 615	
cgg aag aag aac cac ttc ctg gtg gtg ggg gtc ccg gct tcc ccc tac	2045
Arg Lys Lys Asn His Phe Leu Val Val Gly Val Pro Ala Ser Pro Tyr	
616 621 626 631	
tcg cct ggc tca gaa tct aac cta ttt att gac tgt cct gag ggc ctt	2093
Ser Pro Gly Ser Glu Ser Asn Leu Phe Ile Asp Cys Pro Glu Gly Leu	
632 637 642 647	
gaa aac agg ccg aac ctg gag ggc ctg gat ttc ttt ttg ggc tgg aat	2141
Glu Asn Arg Pro Asn Leu Glu Gly Leu Asp Phe Phe Leu Gly Trp Asn	
648 653 658 663	
gct gcc ctg agg gtg ggg ctg gct ctt act cag gaa act gct gtg ccc	2189
Ala Ala Leu Arg Val Gly Leu Ala Leu Thr Gln Glu Thr Ala Val Pro	
664 669 674 679	
aac cca tgg aca ggc cca gct ggg gcc cac atg ctg aca cag act cac	2237
Asn Pro Trp Thr Gly Pro Ala Gly Ala His Met Leu Thr Gln Thr His	
680 685 690 695	
tca gag acc ctt aga cac tgg acc agg cct cct ctc agc ctt ctc ttt	2285
Ser Glu Thr Leu Arg His Trp Thr Arg Pro Pro Leu Ser Leu Leu Phe	
696 701 706 711	
gtc cag att tcc aaa gct gga taa gttggtcatt gattaataaaaaa ggagaagccc	2339
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712 717	
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Ser Asn Leu Ser Gly Leu Val Pro Ala Ala Gly Leu Val Pro Ala Leu
  3              8              13              18

cca cct gct gtg acc ctg ggg ctg aca gct gcc tac acc acc ctg tat      153
Pro Pro Ala Val Thr Leu Gly Leu Thr Ala Ala Tyr Thr Thr Leu Tyr
  19              24              29              34

gcc ctg ctc ttc ttc tcc gtc tat gcc cag ctc tgg ctg gtg ctt ctg      201
Ala Leu Leu Phe Phe Ser Val Tyr Ala Gln Leu Trp Leu Val Leu Leu
  35              40              45              50

tat ggg cac aag cgt ctc agc tat cag acg gtg ttc ctg gcc ctc tgt      249
Tyr Gly His Lys Arg Leu Ser Tyr Gln Thr Val Phe Leu Ala Leu Cys
  51              56              61              66

ctg ctc tgg gcc gcc ttg cgt acc acc ctc ttc tcc ttc tac ttc cga      297
Leu Leu Trp Ala Ala Leu Arg Thr Thr Leu Phe Ser Phe Tyr Phe Arg
  67              72              77              82

gat act ccc cgc gcc aac cgc ctg ggg ccc ttg ccc ttc tgg ctt ctc      345
Asp Thr Pro Arg Ala Asn Arg Leu Gly Pro Leu Pro Phe Trp Leu Leu
  83              88              93              98

tac tgc tgc ccc gtc tgc ctg cag ttc ttc acc ttg acg ctt atg aac      393
Tyr Cys Cys Pro Val Cys Leu Gln Phe Phe Thr Leu Thr Leu Met Asn
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ctc tac ttt gcc cag gtg gtg ttc aag gcc aag gtg aag cgt cgg ccg      441
Leu Tyr Phe Ala Gln Val Val Phe Lys Ala Lys Val Lys Arg Arg Pro
  115              120              125              130

gag atg agc cga ggc ttg ctc gct gtc cga ggg gcc ttt gtg ggg gcc      489
Glu Met Ser Arg Gly Leu Leu Ala Val Arg Gly Ala Phe Val Gly Ala
  131              136              141              146

tcg ctg ctc ttt ctg ctg gtg aac gtg ctg tgt gct gtg ctc tcc cat      537
Ser Leu Leu Phe Leu Leu Val Asn Val Leu Cys Ala Val Leu Ser His
  147              152              157              162

cgg cgc cgg gca cag ccc tgg gcc ctg ctg ctt gtc cgc gtc ctg gtg      585
Arg Arg Arg Ala Gln Pro Trp Ala Leu Leu Leu Val Arg Val Leu Val
  163              168              173              178

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Gln	Glu	Leu	Gly	Leu	Leu	Ile	Lys	Glu	Val	Ala	Asp	Ala	Leu	Gly	Gly		
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Trp	Asp	Leu	Gly	Ser	Ala	Phe	Phe	Phe	Ser	Gly	Thr	Ile	Ile	Thr	Thr		

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Ile Gly Tyr Gly Asn Val Ala Leu Arg Thr Asp Ala Gly Arg Leu Phe				
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Cys Ile Phe Tyr Ala Leu Val Gly Ile Pro Leu Phe Gly Ile Leu Leu				
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His Ile Glu Ala Ile Phe Leu Lys Trp His Val Pro Pro Glu Leu Val				
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Arg Val Leu Ser Ala Met Leu Phe Leu Leu Ile Gly Cys Leu Leu Phe				
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Gln Pro Leu Val Trp Phe Trp Ile Leu Leu Gly Leu Ala Tyr Phe Ala				
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Ser Val Leu Thr Thr Ile Gly Asn Trp Leu Arg Val Val Ser Arg Arg				
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Thr Arg Ala Glu Met Gly Gly Leu Thr Ala Gln Ala Ala Ser Trp Thr				
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Gln Pro Leu Gly Arg Pro Arg Ser Pro Ser Pro Pro Glu Lys Ala Gln				
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Asn Gly Leu His Arg Cys Gly Arg Asp Ala Pro Gly Arg Glu Trp Val	
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Asp Pro Gln Ala Glu Gly Pro Arg Ala Pro Ser Leu Gly Cys Pro Gln	
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Lys Ala Leu Arg Ser Lys Leu Pro Ala Asn Pro Gln Glu Leu Pro Arg	
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Met Ala
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Ala Leu Leu Glu Ile Val His Cys Leu Ile Gly Ile Val Pro Thr Ser
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Val Ile Val Thr Gly Val Gln Val Ser Ser Arg Ile Phe Met Val Trp
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Cys Thr Leu Tyr His Glu Ala Gly Gln Arg Leu Arg Arg Leu Gln Asp
21 26 31 36

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Gln Leu Ala Ala Arg Asp Ala Leu Ile Ala Arg Leu Arg Ala Arg Leu
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Cys Gln His Leu Ala Lys Cys Leu Asp Glu Arg Gln His Ala Gln Arg
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181 186 191 196

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Pro Asp Gly Thr Asp Gln Met Ser Ala Gly Arg Trp Trp Pro Lys Ser	
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Trp Asp Arg Leu Gly *	
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 Gly Tyr Thr Leu Thr Glu Leu Ser Met His Trp Val Arg Gln Ala Pro
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 Gly Lys Gly Leu Glu Trp Met Gly Ala Phe Asp Pro Glu Asp Gly Glu
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 aca atc tac gca cag aag ttc cag ggc aga gtc acc atg acc gag gac 411
 Thr Ile Tyr Ala Gln Lys Phe Gln Gly Arg Val Thr Met Thr Glu Asp
 77 82 87 92
 aca tct aca gac aca ggc tac atg ggg ctg agc agc ctg aga tct gag 459
 Thr Ser Thr Asp Thr Gly Tyr Met Gly Leu Ser Ser Leu Arg Ser Glu
 93 98 103 108

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Glu Asn Ile Ala Ser Leu His Asn Gln Ile Thr Ala Cys Asp Ala Val	
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Leu Glu Arg Met Glu Gln Met Leu Gly Ala Phe Gln Ser Asp Leu Ser	
123 128 133 138	
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Ser Ile Ser Ser Glu Ile Arg Thr Leu Gln Glu Gln Ser Gly Ala Met	
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Asn Ile Arg Leu Arg Asn Arg Gln Ala Val Arg Gly Lys Leu Gly Glu	
155 160 165 170	
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Leu Val Asp Gly Leu Val Val Pro Ser Ala Leu Val Thr Ala Ile Leu	
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Glu Ala Pro Val Thr Glu Pro Arg Phe Leu Glu Gln Leu Gln Glu Leu	
187 192 197 202	
gat gcc aag gca gcc gca gtc aga gag cag gaa gct aga ggc aca gca	854
Asp Ala Lys Ala Ala Ala Val Arg Glu Gln Glu Ala Arg Gly Thr Ala	
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Ala Cys Ala Asp Val Arg Gly Val Leu Asp Arg Leu Arg Val Lys Ala	
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Val Thr Lys Ile Arg Glu Phe Ile Leu Gln Lys Ile Tyr Ser Phe Arg	
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Lys Pro Met Thr Asn Tyr Gln Ile Pro Gln Thr Ala Leu Leu Lys Tyr	
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Arg Phe Phe Tyr Gln Phe Leu Leu Gly Asn Glu Arg Ala Thr Ala Lys	
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283 288 293 298	
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Tyr Tyr Arg Ser Tyr Leu Gly Arg Leu Met Lys Val Gln Tyr Glu Glu	
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Val Ala Glu Lys Asp Asp Leu Met Gly Val Glu Asp Thr Ala Lys Lys	
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Gly Phe Phe Ser Lys Pro Ser Leu Arg Ser Arg Asn Thr Ile Phe Thr 331 336 341 346	
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atc ctg gtg cct cac aca gcg cag cgc gga gag cag agg tat cca ttt Ile Leu Val Pro His Thr Ala Gln Arg Gly Glu Gln Arg Tyr Pro Phe 363 368 373 378	1334
gag gcc ctc ttc cgc agc cag cac tac gcc ctc cta gac aat tcc tgc Glu Ala Leu Phe Arg Ser Gln His Tyr Ala Leu Leu Asp Asn Ser Cys 379 384 389 394	1382
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tcc tca agg aag gag cag ctt gtg ttt ctg atc aac aac tat gac atg Ser Ser Arg Lys Glu Gln Leu Val Phe Leu Ile Asn Asn Tyr Asp Met 559 564 569 574	1910

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Arg Ile Leu Asp Ser Leu His Tyr Phe Tyr Trp Leu Ala Ser Val Val				
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Gly Ala Gly Ala Ala Gly Trp Ser Cys Pro Gly Pro Gly Pro Thr Val				
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Thr Thr Leu Gly Ser Tyr Glu Ala Ser Glu Gly Cys Glu Arg Lys Lys				
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Gly Gln Arg Trp Gly Ser Leu Glu Arg Arg Gly Met Gln Ala Met Glu				
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Gly Glu Val Leu Leu Pro Ala Leu Tyr Glu Glu Glu Glu Glu Glu Glu	
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Glu Glu Glu Glu Glu Val Glu Glu Glu Glu Glu Glu Gln Val Gln Lys Gly	
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Gly Ser Val Gly Ser Leu Ser Val Asn Lys His Arg Gly Leu Ser Leu	
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Thr Glu Thr Glu Leu Glu Glu Leu Arg Ala Gln Val Leu Gln Leu Val	
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Ile Gln Ser Leu Arg Gln Ala Ala Glu Asp Ser Ala Thr Glu His Glu	
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Leu Glu Asp Met Glu Arg Ile Arg Gly Asp Tyr Glu Met Glu Ile Ala	
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Ser Leu Arg Ala Glu Met Glu Met Lys Ser Ser Glu Pro Ser Gly Ser	
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Leu Gly Leu Ser Asp Tyr Ser Gly Leu Gln Glu Glu Leu Gln Glu Leu	
264 269 274 279	
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Ser	Asn	Ser	Ser	Leu	Thr	Gly	Gln	Leu	Ala	Asp	Leu	Glu	Ser	Glu	Arg	
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Glu	Leu	Gln	His	His	Arg	Gln	Val	Ser	Glu	Glu	Glu	Gln	Arg	Arg	Leu	
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Gln	Arg	Glu	Leu	Lys	Cys	Ala	Gln	Asn	Glu	Val	Leu	Arg	Phe	Gln	Thr	
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Ser	His	Ser	Val	Thr	Gln	Arg	Phe	Glu	Glu	Met	Val	Val	Lys	Val	Leu	
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Ile	Lys	Leu	Gln	Ala	Val	Gln	Ala	Met	Tyr	Gln	Ile	Ser	Gln	Glu	Glu	
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cac	agc	cag	ctg	caa	gag	cag	atg	gaa	aag	tta	ctg	gcc	aag	cag	aaa	1396
His	Ser	Gln	Leu	Gln	Glu	Gln	Met	Glu	Lys	Leu	Leu	Ala	Lys	Gln	Lys	
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gac	ctg	aag	gaa	gag	ctg	gat	gcc	tgt	gaa	agg	gag	ttc	aag	gag	tgc	1444
Asp	Leu	Lys	Glu	Glu	Leu	Asp	Ala	Cys	Glu	Arg	Glu	Phe	Lys	Glu	Cys	
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488					493					498					503	
gtg	gct	ctg	tat	gtg	tta	ccc	aac	atg	cga	cag	cag	gag	tca	gag	ttc	1588
Val	Ala	Leu	Tyr	Val	Leu	Pro	Asn	Met	Arg	Gln	Gln	Glu	Ser	Glu	Phe	

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Cys Leu Met Glu *				/
520				1
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Met Leu Trp Phe Gln Gly Ala Ile Pro Ala Ala Ile	
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Val Thr Glu Ala Ser Ser Asn Ser Phe Val Ala Ile Lys Ile Asp Thr	
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Lys Ser Glu Ala Cys Leu Gln Phe Ser Gln Ile Tyr Pro Val Val Cys	
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Ile Ala Gly Ser Val Ser Ala Asp Glu Leu Val Thr Arg Ile His Lys	
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Val Arg Gln Met His Leu Leu Lys Ser Glu Thr Ser Val Ala Asn Gly	
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Ser Gln Ser Glu Ser Ser Val Ser Thr Pro Ser Ala Ser Phe Glu Pro	
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Asn Asn Thr Cys Glu Asn Ser Gln Ser Arg Asn Ala Glu Leu Cys Glu	
141 146 151 156	
ata cca ccc act tct gat aca aag tca gat act gca aca gga gga gaa	831
Ile Pro Pro Thr Ser Asp Thr Lys Ser Asp Thr Ala Thr Gly Gly Glu	
157 162 167 172	
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Ser Ala Gly His Ala Thr Ser Ser Gln Glu Pro Ser Gly Cys Ser Asp	
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Gln Arg Pro Ala Glu Asp Leu Asn Ile Arg Val Glu Arg Leu Thr Lys	
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333					338					343					348		
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ctg	gat	ttg	gaa	ctt	gcc	cca	agc	gct	tcg	gtg	gta	ctg	ttg	cca	gca	1503	
Leu	Asp	Leu	Glu	Leu	Ala	Pro	Ser	Ala	Ser	Val	Val	Leu	Leu	Pro	Ala		
381					386					391					396		
gga	aga	cca	act	gca	tcc	att	gta	cac	tct	tcc	agc	gga	gac	att	tgg	1551	
Gly	Arg	Pro	Thr	Ala	Ser	Ile	Val	His	Ser	Ser	Ser	Gly	Asp	Ile	Trp		
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Thr	Leu	Leu	Gly	Thr	Val	Leu	Tyr	Pro	Phe	Leu	Ala	Ile	Trp	Arg	Leu		
413					418					423					428		
att	agc	aat	ttc	ttg	ttt	agt	aat	ccg	cct	ccc	aca	cag	act	tca	gtg	1647	
Ile	Ser	Asn	Phe	Leu	Phe	Ser	Asn	Pro	Pro	Pro	Thr	Gln	Thr	Ser	Val		
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Arg	Val	Thr	Ser	Ser	Glu	Pro	Pro	Asn	Pro	Ala	Ser	Ser	Ser	Lys	Ser		
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Glu	Lys	Arg	Glu	Pro	Val	Arg	Lys	Arg	Val	Leu	Glu	Lys	Arg	Gly	Asp		
461					466					471					476		
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Asp	Phe	Lys	Lys	Glu	Gly	Lys	Ile	Tyr	Arg	Leu	Arg	Thr	Gln	Asp	Asp		
477					482					487					492		
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aagctgtcaa	atagggtgtga	ccctactaat	aattattaga	aatacattta	aaaacatcga	3696

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cccgactccc tttggctcag cccgcgcgcc ccaggcccg cccgggaggc gcgacgggag 180
g atg agc ggc ggg cgc gga agg agg agc cgc ctc agc cgc agc tgg 226
Met Ser Gly Gly Arg Gly Arg Arg Ser Arg Leu Ser Arg Ser Trp
1 5 10
cca acg ggg ccc tca aag tct ccg tct gga gta agg tgc tgc gga cga 274
Pro Thr Gly Pro Ser Lys Ser Pro Ser Gly Val Arg Cys Cys Gly Arg
16 21 26 31
cgc gcc tgg gag gat aag gat gaa ttt tta gat gtg atc tac tgg ttc 322
Arg Ala Trp Glu Asp Lys Asp Glu Phe Leu Asp Val Ile Tyr Trp Phe
32 37 42 47
cga cag atc att gct gtg gtc ctg ggt gtc att tgg gga gtt ttg cca 370
Arg Gln Ile Ile Ala Val Val Leu Gly Val Ile Trp Gly Val Leu Pro
48 53 58 63
tta cga ggg ttc ttg gga ata gca gga ttc tgc ctg atc aat gca gga 418
Leu Arg Gly Phe Leu Gly Ile Ala Gly Phe Cys Leu Ile Asn Ala Gly
64 69 74 79
gtc ctg tac ctc tac ttc agc aat tac cta cag att gat gag gaa gaa 466
Val Leu Tyr Leu Tyr Phe Ser Asn Tyr Leu Gln Ile Asp Glu Glu Glu
80 85 90 95
tat ggt ggc acg tgg gag ctc acg aag gaa ggg ttt atg acc tct ttt 514

Tyr	Gly	Gly	Thr	Trp	Glu	Leu	Thr	Lys	Glu	Gly	Phe	Met	Thr	Ser	Phe	
96					101					106					111	

gcc	ttg	ttc	atg	gtc	att	tgg	atc	atc	ttt	tac	act	gcc	atc	cat	tat	562
Ala	Leu	Phe	Met	Val	Ile	Trp	Ile	Ile	Phe	Tyr	Thr	Ala	Ile	His	Tyr	
112					117					122					127	

gac	tga	tggtgtacag	ctcccaagt	ctccctatcc	agtc	caaagg	accctcttga	618
Asp	*							
128								

ttacagcaca	ggaacttgat	cggtggggaa	ccccagcccc	ttggaacttg	gaagaccgct	678
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gtttcctgga	ccgcgaatca	gtgtgttggg	catcagtgtt	ttctgcaagg	gttgtgacct	738
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gaaactttttt	aaaaaccccc	cccctttggg	gaagcatttt	tgaatttatc	catccccaac	798
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cattttttttt	tggataccat	caagtaacag	ctattatttg	ccaagtggag	ctgtcattta	858
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				Met	Val	Arg	Thr	Lys	Thr	Trp	
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Thr	Leu	Lys	Lys	His	Phe	Val	Gly	Tyr	Pro	Thr	Asn	Ser	Asp	Phe	Glu	
8				13						18					23	

ttg	aag	aca	gct	gag	ctc	cca	ccc	tta	aaa	aat	gga	gag	gtc	ctg	ctt	209
Leu	Lys	Thr	Ala	Glu	Leu	Pro	Pro	Leu	Lys	Asn	Gly	Glu	Val	Leu	Leu	
24				29						34					39	

gaa	gct	ttg	ttc	ctc	acc	gtg	gat	ccc	tac	atg	aga	gtg	gca	gcc	aaa	257
Glu	Ala	Leu	Phe	Leu	Thr	Val	Asp	Pro	Tyr	Met	Arg	Val	Ala	Ala	Lys	
40				45						50					55	

aga	ttg	aag	gaa	ggt	gat	aca	atg	atg	ggg	cag	caa	gtg	gcc	aaa	gtt	305
Arg	Leu	Lys	Glu	Gly	Asp	Thr	Met	Met	Gly	Gln	Gln	Val	Ala	Lys	Val	
56				61						66					71	

gtg	gaa	agt	aaa	aat	gta	gcc	cta	cca	aaa	gga	act	att	gta	ctg	gct	353
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Val	Glu	Ser	Lys	Asn	Val	Ala	Leu	Pro	Lys	Gly	Thr	Ile	Val	Leu	Ala		
72					77					82					87		
tct	cca	ggc	tgg	aca	acg	cac	tcc	att	tct	gat	ggg	aaa	gat	ctg	gaa	401	
Ser	Pro	Gly	Trp	Thr	Thr	His	Ser	Ile	Ser	Asp	Gly	Lys	Asp	Leu	Glu		
88					93					98					103		
aag	ctg	ctg	aca	gag	tgg	cca	gac	aca	ata	cca	ctg	tct	ttg	gct	ctg	449	
Lys	Leu	Leu	Thr	Glu	Trp	Pro	Asp	Thr	Ile	Pro	Leu	Ser	Leu	Ala	Leu		
104					109					114					119		
ggg	aca	gtt	ggc	atg	cca	ggc	ctg	act	gcc	tac	ttt	ggc	cta	ctt	gaa	497	
Gly	Thr	Val	Gly	Met	Pro	Gly	Leu	Thr	Ala	Tyr	Phe	Gly	Leu	Leu	Glu		
120					125					130					135		
atc	tgt	ggt	gtg	aag	ggt	gga	gaa	aca	gtg	atg	gtt	aat	gca	gca	gct	545	
Ile	Cys	Gly	Val	Lys	Gly	Gly	Glu	Thr	Val	Met	Val	Asn	Ala	Ala	Ala		
136					141					146					151		
gga	gct	gtg	ggc	tca	gtc	gtg	ggg	cag	att	gca	aag	ctc	aag	ggc	tgc	593	
Gly	Ala	Val	Gly	Ser	Val	Val	Gly	Gln	Ile	Ala	Lys	Leu	Lys	Gly	Cys		
152					157					162					167		
aaa	gtt	gtt	gga	gca	gta	ggg	tct	gat	gaa	aag	gtt	gcc	tac	ctt	caa	641	
Lys	Val	Val	Gly	Ala	Val	Gly	Ser	Asp	Glu	Lys	Val	Ala	Tyr	Leu	Gln		
168					173					178					183		
aag	ctt	gga	ttt	gat	gtc	gtc	ttt	aac	tac	aag	acg	gta	gag	tct	ttg	689	
Lys	Leu	Gly	Phe	Asp	Val	Val	Phe	Asn	Tyr	Lys	Thr	Val	Glu	Ser	Leu		
184					189					194					199		
gaa	gaa	acc	ttg	aag	aaa	gcg	tct	cct	gat	ggt	tat	gat	tgt	tat	ttt	737	
Glu	Glu	Thr	Leu	Lys	Lys	Ala	Ser	Pro	Asp	Gly	Tyr	Asp	Cys	Tyr	Phe		
200					205					210					215		
gat	aat	gta	ggt	gga	gag	ttt	tca	aac	act	gtt	atc	ggc	cag	atg	aag	785	
Asp	Asn	Val	Gly	Gly	Glu	Phe	Ser	Asn	Thr	Val	Ile	Gly	Gln	Met	Lys		
216					221					226					231		
aaa	ttt	gga	agg	att	gcc	ata	tgt	gga	gcc	atc	tct	aca	tat	aac	aga	833	
Lys	Phe	Gly	Arg	Ile	Ala	Ile	Cys	Gly	Ala	Ile	Ser	Thr	Tyr	Asn	Arg		
232					237					242					247		
acc	ggc	cca	ctt	ccc	cca	ggc	cca	ccc	cca	gag	att	gtt	atc	tat	cag	881	
Thr	Gly	Pro	Leu	Pro	Pro	Gly	Pro	Pro	Pro	Glu	Ile	Val	Ile	Tyr	Gln		
248					253					258					263		
gag	ctt	cgc	atg	gaa	gct	ttt	gtc	gtc	tac	cgc	tgg	caa	gga	gat	gcc	929	
Glu	Leu	Arg	Met	Glu	Ala	Phe	Val	Val	Tyr	Arg	Trp	Gln	Gly	Asp	Ala		
264					269					274					279		
cgc	caa	aaa	gct	ctg	aag	gac	ttg	ctg	aaa	tgg	gtc	tta	gag	ggt	aaa	977	
Arg	Gln	Lys	Ala	Leu	Lys	Asp	Leu	Leu	Lys	Trp	Val	Leu	Glu	Gly	Lys		
280					285					290					295		
atc	cag	tac	aag	gaa	tat	atc	att	gaa	gga	ttt	gaa	aac	atg	cca	gct	1025	
Ile	Gln	Tyr	Lys	Glu	Tyr	Ile	Ile	Glu	Gly	Phe	Glu	Asn	Met	Pro	Ala		

296	301	306	311	
gca ttt atg gga atg ctg aaa gga gat aat ttg ggg aag aca ata gtg				1073
Ala Phe Met Gly Met Leu Lys Gly Asp Asn Leu Gly Lys Thr Ile Val				
312	317	322	327	
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Lys Ala *				
328				
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ctcgcctggga ctccctggga g atg agg ccg cga ggt ctc ccg ccg ctc ctg	171
Met Arg Pro Arg Gly Leu Pro Pro Leu Leu	
1 5	
gtg gtg ctc ctg ggc tgc tgg gcc tcc gtg agc gcc cag acc gat gcc	219
Val Val Leu Leu Gly Cys Trp Ala Ser Val Ser Ala Gln Thr Asp Ala	
11 16 21 26	
acc ccg gcg gtg acg aca gag ggc ctc aac tcc acc gag gca gcc ctg	267
Thr Pro Ala Val Thr Thr Glu Gly Leu Asn Ser Thr Glu Ala Ala Leu	
27 32 37 42	
gcc acc ttc gga act ttc ccg tcg acc agg ccc ccc ggg act ccc agg	315
Ala Thr Phe Gly Thr Phe Pro Ser Thr Arg Pro Pro Gly Thr Pro Arg	
43 48 53 58	
gct cca ggg ccc tcc tcc ggc ccc agg cct acc cca gtc acg gac gtt	363
Ala Pro Gly Pro Ser Ser Gly Pro Arg Pro Thr Pro Val Thr Asp Val	
59 64 69 74	
gct gtt ctc tgt gtc tgt gac tta tcc cca gca cag tgt gac atc aac	411
Ala Val Leu Cys Val Cys Asp Leu Ser Pro Ala Gln Cys Asp Ile Asn	
75 80 85 90	
tgc tgc tgt gat ccc gac tgc agc tcc gtg gat ttc agt gtc ttt tct	459
Cys Cys Cys Asp Pro Asp Cys Ser Ser Val Asp Phe Ser Val Phe Ser	
91 96 101 106	

gcc tgc tca gtt cca gtt gtc acg ggc gac agc cag ttt tgt agt caa	507
Ala Cys Ser Val Pro Val Val Thr Gly Asp Ser Gln Phe Cys Ser Gln	
107 112 117 122	
aaa gca gtc atc tat tca ttg aat ttt aca gca aac cca cct caa aga	555
Lys Ala Val Ile Tyr Ser Leu Asn Phe Thr Ala Asn Pro Pro Gln Arg	
123 128 133 138	
gta ttt gaa ctt gtt gac cag att aat cca tct att ttc tgc att cat	603
Val Phe Glu Leu Val Asp Gln Ile Asn Pro Ser Ile Phe Cys Ile His	
139 144 149 154	
att aca aac tat aaa cct gca tta tcc ttt att aat cca gaa gta cct	651
Ile Thr Asn Tyr Lys Pro Ala Leu Ser Phe Ile Asn Pro Glu Val Pro	
155 160 165 170	
gat gaa aac aat ttt gat aca ttg atg aaa aca tct gat ggt ttt aca	699
Asp Glu Asn Asn Phe Asp Thr Leu Met Lys Thr Ser Asp Gly Phe Thr	
171 176 181 186	
ttg aat gct gaa tca tat gtt tcc ttc aca acc aaa ctg gat att cct	747
Leu Asn Ala Glu Ser Tyr Val Ser Phe Thr Thr Lys Leu Asp Ile Pro	
187 192 197 202	
act gct gct aaa tat gag tat ggg gtt cct ctg cag act tca gat tcg	795
Thr Ala Ala Lys Tyr Glu Tyr Gly Val Pro Leu Gln Thr Ser Asp Ser	
203 208 213 218	
ttt ctg aga ttt cct tcg tcc ctg aca tca tct ctg tgc act gat aat	843
Phe Leu Arg Phe Pro Ser Ser Leu Thr Ser Ser Leu Cys Thr Asp Asn	
219 224 229 234	
aac cct gca gcg ttt ctg gtg aac cag gct gtt aag tgc acc aga aaa	891
Asn Pro Ala Ala Phe Leu Val Asn Gln Ala Val Lys Cys Thr Arg Lys	
235 240 245 250	
ata aat tta gaa cag tgt gaa gaa att gaa gcc ctc agc atg gct ttt	939
Ile Asn Leu Glu Gln Cys Glu Glu Ile Glu Ala Leu Ser Met Ala Phe	
251 256 261 266	
tac agc agc ccg gaa att ctg agg gta cct gat tca aga aaa aag gtc	987
Tyr Ser Ser Pro Glu Ile Leu Arg Val Pro Asp Ser Arg Lys Lys Val	
267 272 277 282	
cct atc act gtt cag tcc atc gtc att cag tct cta aat aaa acg ctc	1035
Pro Ile Thr Val Gln Ser Ile Val Ile Gln Ser Leu Asn Lys Thr Leu	
283 288 293 298	
acc cga cgg gag gac act gat gtg ctg cag ccg act ctc gtc aac gct	1083
Thr Arg Arg Glu Asp Thr Asp Val Leu Gln Pro Thr Leu Val Asn Ala	
299 304 309 314	
gga cac ttt agc ctt tgc gtg aat gtt gtt ctt gag gta aag tac agc	1131
Gly His Phe Ser Leu Cys Val Asn Val Val Leu Glu Val Lys Tyr Ser	
315 320 325 330	
ctc aca tac aca gat gca ggt gaa gtc acc aaa gct gat ctc tca ttc	1179

Leu Thr Tyr Thr Asp Ala Gly Glu Val Thr Lys Ala Asp Leu Ser Phe	
331 336 341 346	
gtt ctg ggg aca gtt agc agc gta gtg gtc cca ctg cag caa aag ttt	1227
Val Leu Gly Thr Val Ser Ser Val Val Val Pro Leu Gln Gln Lys Phe	
347 352 357 362	
gaa att cat ttt ctt cag gaa aat acc cag cca gtc cct ctc agt gga	1275
Glu Ile His Phe Leu Gln Glu Asn Thr Gln Pro Val Pro Leu Ser Gly	
363 368 373 378	
aac cct ggt tat gtc gtg ggg ctc cca tta gct gct gga ttc cag cct	1323
Asn Pro Gly Tyr Val Val Gly Leu Pro Leu Ala Ala Gly Phe Gln Pro	
379 384 389 394	
cat aag ggt gga gct ctc ccg tgt cag ctc gta gca cag aag gtg aag	1371
His Lys Gly Gly Ala Leu Pro Cys Gln Leu Val Ala Gln Lys Val Lys	
395 400 405 410	
agc ctg ctg tgg ggc cag ggc ttc cca gat tac gtg gcc cct ttt gga	1419
Ser Leu Leu Trp Gly Gln Gly Phe Pro Asp Tyr Val Ala Pro Phe Gly	
411 416 421 426	
aat tcc cag gcc cag gac atg ctg gac tgg gtg ccc atc cac ttc atc	1467
Asn Ser Gln Ala Gln Asp Met Leu Asp Trp Val Pro Ile His Phe Ile	
427 432 437 442	
acc cag tca ttc aac agg aag gat tcc tgc cag ctc cca ggg gct ttg	1515
Thr Gln Ser Phe Asn Arg Lys Asp Ser Cys Gln Leu Pro Gly Ala Leu	
443 448 453 458	
gtt ata gaa gtg aag tgg act aaa tac gga tcc ctg ctg aat cca cag	1563
Val Ile Glu Val Lys Trp Thr Lys Tyr Gly Ser Leu Leu Asn Pro Gln	
459 464 469 474	
gcc aaa ata gtc aat gta act gca aat cta att tca tcc tcc ttt cct	1611
Ala Lys Ile Val Asn Val Thr Ala Asn Leu Ile Ser Ser Ser Phe Pro	
475 480 485 490	
gag gcc aac tca gga aat gaa agg acg att ctt att tcc act gcg gtt	1659
Glu Ala Asn Ser Gly Asn Glu Arg Thr Ile Leu Ile Ser Thr Ala Val	
491 496 501 506	
act ttt gtg gat gtg tct gca cct gca gag gca ggc ttc aga gct cca	1707
Thr Phe Val Asp Val Ser Ala Pro Ala Glu Ala Gly Phe Arg Ala Pro	
507 512 517 522	
cca gcc atc aat gcc agg ctg ccc ttt aac ttc ttc ttc ccg ttt gtt	1755
Pro Ala Ile Asn Ala Arg Leu Pro Phe Asn Phe Phe Phe Pro Phe Val	
523 528 533 538	
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<222> (402) .. (2282)
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117 122 127 132	
gtc cga atc att gat aca cct caa ttt caa cgt ctt cga tac atc aaa	845
Val Arg Ile Ile Asp Thr Pro Gln Phe Gln Arg Leu Arg Tyr Ile Lys	
133 138 143 148	
cag ctg gga ggt ggt tac tat gtt ttt cca gga gct tca cac aat cga	893
Gln Leu Gly Gly Gly Tyr Tyr Val Phe Pro Gly Ala Ser His Asn Arg	
149 154 159 164	
ttt gag cat agt cta ggg gtg ggg tat cta gca gga tgt cta gtt cac	941
Phe Glu His Ser Leu Gly Val Gly Tyr Leu Ala Gly Cys Leu Val His	
165 170 175 180	
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Ala Leu Gly Glu Lys Gln Pro Glu Leu Gln Ile Ser Glu Arg Asp Val	
181 186 191 196	
ctc tgt gtt cag att gct gga ctt tgt cat gat ctc ggt cat ggg cca	1037
Leu Cys Val Gln Ile Ala Gly Leu Cys His Asp Leu Gly His Gly Pro	
197 202 207 212	
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Phe Ser His Met Phe Asp Gly Arg Phe Ile Pro Leu Ala Arg Pro Glu	
213 218 223 228	
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Val Lys Trp Thr His Glu Gln Gly Ser Val Met Met Phe Glu His Leu	
229 234 239 244	
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Ile Asn Ser Asn Gly Ile Lys Pro Val Met Glu Gln Tyr Gly Leu Ile	
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Pro Glu Glu Asp Ile Cys Phe Ile Lys Glu Gln Ile Val Gly Pro Leu	
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Glu Ser Pro Val Glu Asp Ser Leu Trp Pro Tyr Lys Gly Arg Pro Glu	
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Asn Lys Ser Phe Leu Tyr Glu Ile Val Ser Asn Lys Arg Asn Gly Ile	
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Asp Val Asp Lys Trp Asp Tyr Phe Ala Arg Asp Cys His His Leu Gly	
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Ile Gln Asn Asn Phe Asp Tyr Lys Arg Phe Ile Lys Phe Ala Arg Val	
325 330 335 340	
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Cys	Glu	Val	Asp	Asn	Glu	Leu	Arg	Ile	Cys	Ala	Arg	Asp	Lys	Glu	Val		
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gct	tat	caa	cac	aaa	gtt	ggc	aac	att	att	gat	aca	atg	att	aca	gat	1565	
Ala	Tyr	Gln	His	Lys	Val	Gly	Asn	Ile	Ile	Asp	Thr	Met	Ile	Thr	Asp		
373					378					383					388		
gct	ttc	ctc	aaa	gca	gat	gac	tac	ata	gag	att	aca	ggt	gct	gga	gga	1613	
Ala	Phe	Leu	Lys	Ala	Asp	Asp	Tyr	Ile	Glu	Ile	Thr	Gly	Ala	Gly	Gly		
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Lys	Leu	Thr	Asp	Asn	Ile	Phe	Leu	Glu	Ile	Leu	Tyr	Ser	Thr	Asp	Pro		
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Lys	Leu	Lys	Asp	Ala	Arg	Glu	Ile	Leu	Lys	Gln	Ile	Glu	Tyr	Arg	Asn		
437					442					447					452		
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Lys	Arg	Glu	Asp	Tyr	Glu	Ser	Leu	Pro	Lys	Glu	Val	Ala	Ser	Ala	Lys		
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Pro	Lys	Val	Leu	Leu	Asp	Val	Lys	Leu	Lys	Ala	Glu	Asp	Phe	Ile	Val		
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Asp	Val	Ile	Asn	Met	Asp	Tyr	Gly	Met	Gln	Glu	Lys	Asn	Pro	Ile	Asp		
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cat	gtt	agc	ttc	tat	tgt	aag	act	gcc	ccc	aac	aga	gca	atc	agg	att	1997	
His	Val	Ser	Phe	Tyr	Cys	Lys	Thr	Ala	Pro	Asn	Arg	Ala	Ile	Arg	Ile		
517					522					527					532		
act	aaa	aac	cag	gtt	tca	caa	ctt	ctg	cca	gag	aaa	ttt	gca	gag	cag	2045	
Thr	Lys	Asn	Gln	Val	Ser	Gln	Leu	Leu	Pro	Glu	Lys	Phe	Ala	Glu	Gln		
533					538					543					548		
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Leu	Ile	Arg	Val	Tyr	Cys	Lys	Lys	Val	Asp	Arg	Lys	Ser	Leu	Tyr	Ala		
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gca	aga	caa	tat	ttt	gtt	cag	tggt	tgt	gca	gac	aga	aat	ttc	acc	aag	2141	
Ala	Arg	Gln	Tyr	Phe	Val	Gln	Trp	Cys	Ala	Asp	Arg	Asn	Phe	Thr	Lys		

565	570	575	580	
ccg cag gat ggc gat gtt ata gcc cca ctc ata aca cct caa aaa aag				2189
Pro Gln Asp Gly Asp Val Ile Ala Pro Leu Ile Thr Pro Gln Lys Lys				
581	586	591	596	
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Glu Trp Asn Asp Ser Thr Ser Val Gln Asn Pro Thr Arg Leu Arg Glu				
597	602	607	612	
gca tcc aaa agc aga gtc cag ctt ttt aaa gat gac cca atg tga atg				2285
Ala Ser Lys Ser Arg Val Gln Leu Phe Lys Asp Asp Pro Met *				
613	618	623		
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tagaattctg caaattaatg acaactcatg ctttaatttt gtattttgaa tgtacacgca				2405
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tctattttct tagaataaca actcttttat ctattctgaa ctctattttt tttctttttt				2585
aagagacaag gttttgctct gttgcccagc ttggactcga actttcctgg gctcgagcga				2645
ccctcctgcc tcagccccc aagtagctgg gactaaagtc atgtgccacc acaccagct				2705
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tctgcagacc tttctgccgg tcacactgac ggcattattgc agagcctgcc agggactcac	180
aggggatgac aggggattta tcagggtgggt ttttactgca ctgtcattac tgggggcgaa	240

tccacttttaa tacattcatg cctcctgagc ctgtgggaat tcaagaggaa cagaaccaga	300
aataattgaa ccataactgc cctttggcat/ ctgacctctt ctgggaggct taatttctta	360
caaatatgtg gctctgcttt tcaaactctt gtttgatgat tttctcttct tcntttttca	420
ggttttcccc ccacgacctg accgtgtcgc tatagtgacg ggagggacag atggcattgg	480
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gacgtgagtc ttgctgtgtt gcccgggctg gctttgcctc tgg ³ aactcaa gcgatcctcc	660
cacctcagcc tctcgaggag ctgggactac aggcgtgcac catcatttcc tcctaaaatt	720
tggaattttt atactgtgac ttggcttcc atg act tcc atc cgg cag ttt gtg	773
Met Thr Ser Ile Arg Gln Phe Val	
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cag aag ttc aag atg aag aag att cct ctc cat gtc ctg atc aac aat	821
Gln Lys Phe Lys Met Lys Lys Ile Pro Leu His Val Leu Ile Asn Asn	
9 14 19 24	
gct ggg gtg atg atg gtc cct cag agg aaa acc aga gat gga ttc gaa	869
Ala Gly Val Met Met Val Pro Gln Arg Lys Thr Arg Asp Gly Phe Glu	
25 30 35 40	
gaa cat ttc ggc ctg aac tac cta ggg cac ttc ctg ctg acc aac ctt	917
Glu His Phe Gly Leu Asn Tyr Leu Gly His Phe Leu Leu Thr Asn Leu	
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ctc ttg gat acg ctg aaa gag tct ggg tcc cct ggc cac agt gcg agg	965
Leu Leu Asp Thr Leu Lys Glu Ser Gly Ser Pro Gly His Ser Ala Arg	
57 62 67 72	
gtg gtc acc gtc tcc tct gcc acc cat tac gtc gct gag ctg aac atg	1013
Val Val Thr Val Ser Ser Ala Thr His Tyr Val Ala Glu Leu Asn Met	
73 78 83 88	
gat gac ctt cag agc agt gcc tgc tac tca ccc cac gca gcc tac gcc	1061
Asp Asp Leu Gln Ser Ser Ala Cys Tyr Ser Pro His Ala Ala Tyr Ala	
89 94 99 104	
cag agc aag ctg gcc ctt gtc ctg ttc acc tac cac ctc cag cgg ctg	1109
Gln Ser Lys Leu Ala Leu Val Leu Phe Thr Tyr His Leu Gln Arg Leu	
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ctg gcg gct gag gga agc cac gtg acc gcc aac gtg gtg gac ccc ggg	1157
Leu Ala Ala Glu Gly Ser His Val Thr Ala Asn Val Val Asp Pro Gly	
121 126 131 136	
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Val Val Asn Thr Asp Val Tyr Lys His Val Phe Trp Ala Thr Arg Leu	
137 142 147 152	

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Ala Lys Lys Leu Leu Gly Trp Leu Leu Phe Lys Thr Pro Asp Glu Gly	
153 158 163 168	
gcg tgg act tcc atc tac gca gca gtc acc cca gag ctg gaa gga gtt	1301
Ala Trp Thr Ser Ile Tyr Ala Ala Val Thr Pro Glu Leu Glu Gly Val	
169 174 179 184	
ggt ggc cat tac cta tac aac aag aaa gag acc aag tcc ctc cac gtc	1349
Gly Gly His Tyr Leu Tyr Asn Lys Lys Glu Thr Lys Ser Leu His Val	
185 190 195 200	
acc tac aac cag aaa ctg cag cag cag ctg tgg tct aag agt tgt gag	1397
Thr Tyr Asn Gln Lys Leu Gln Gln Gln Leu Trp Ser Lys Ser Cys Glu	
201 206 211 216	
atg act ggg gtc ctt gat gtg acc ctg tga t atcctgtctc aggatagctg	1448
Met Thr Gly Val Leu Asp Val Thr Leu *	
217 222	
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aagtgaagca tgccactgtc aaatccgaga atgtaaaccg ctgaacagct atggatcaaa	2048
tggtagccct caaaagatat gttcatgcc taacctcag aacctataaa tattacttta	2108
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cccagtgaac ctaatgccat tcacgagggt tcttatncag aggacaggta gaggggagat	2228
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tggccaccac aggccaggca tg	2310

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<213> Homo sapiens

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gtctccagtc cgggaccgaa gccgcctgcc gtagcgggcg gccagatccg cgtcccgct	180
cagcggccgg aggacatgcg ggagagaga atg agc cag agg gac acg ctg gtg	233
Met Ser Gln Arg Asp Thr Leu Val	
1 5	
cat ctg ttt gcc gga gga tgt ggt ggt aca gtg gga gct att ctg aca	281
His Leu Phe Ala Gly Gly Cys Gly Gly Thr Val Gly Ala Ile Leu Thr	
9 14 19 24	
tgt cca ctg gaa gtt gta aaa aca cga ctg cag tca tct tct gtg acg	329
Cys Pro Leu Glu Val Val Lys Thr Arg Leu Gln Ser Ser Ser Val Thr	
25 30 35 40	
ctt tat att tct gaa gtt cag ctg aac acc atg gct gga gcc agt gtc	377
Leu Tyr Ile Ser Glu Val Gln Leu Asn Thr Met Ala Gly Ala Ser Val	
41 46 51 56	
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Asn Arg Val Val Ser Pro Gly Pro Leu His Cys Leu Lys Val Ile Leu	
57 62 67 72	
gaa aaa gaa ggg cct cgt tcc ttg ttt aga gga cta ggc ccc aat tta	473
Glu Lys Glu Gly Pro Arg Ser Leu Phe Arg Gly Leu Gly Pro Asn Leu	
73 78 83 88	
gtg ggg gta gcc cct tcc aga gca ata tac ttt gct gct tat tca aac	521
Val Gly Val Ala Pro Ser Arg Ala Ile Tyr Phe Ala Ala Tyr Ser Asn	
89 94 99 104	
tgc aag gaa aag ttg aat gat gta ttt gat cct gat tct acc caa gta	569
Cys Lys Glu Lys Leu Asn Asp Val Phe Asp Pro Asp Ser Thr Gln Val	
105 110 115 120	
cat atg att tca gct gca atg gca ggt ttt act gca atc aca gca acc	617
His Met Ile Ser Ala Ala Met Ala Gly Phe Thr Ala Ile Thr Ala Thr	
121 126 131 136	
aac ccc att tgg ctt ata aag act cgg tta cag ctt gat gca agg aac	665
Asn Pro Ile Trp Leu Ile Lys Thr Arg Leu Gln Leu Asp Ala Arg Asn	
137 142 147 152	
cgc ggg gaa agg cga atg ggt gct ttt gaa tgt gtt cgt aaa gtg tat	713
Arg Gly Glu Arg Arg Met Gly Ala Phe Glu Cys Val Arg Lys Val Tyr	
153 158 163 168	
cag aca gat gga cta aaa gga ttt tat agg ggc atg tct gct tca tat	761

Gln Thr Asp Gly Leu Lys Gly Phe Tyr Arg Gly Met Ser Ala Ser Tyr	
169 174 179 184	
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Ala Gly Ile Ser Glu Thr Val Ile His Phe Val Ile Tyr Glu Ser Ile	
185 190 195 200	
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Lys Gln Lys Leu Leu Glu Tyr Lys Thr Ala Ser Thr Met Glu Asn Asp	
201 206 211 216	
gaa gag tct gtg aaa gaa gca tca gat ttt gtg gga atg atg cta gct	905
Glu Glu Ser Val Lys Glu Ala Ser Asp Phe Val Gly Met Met Leu Ala	
217 222 227 232	
gct gcc acc tca aaa act tgt gcc aca act ata gca tat cca cat gaa	953
Ala Ala Thr Ser Lys Thr Cys Ala Thr Thr Ile Ala Tyr Pro His Glu	
233 238 243 248	
ggt gta aga aca aga cta cgt gaa gag gga aca aaa tac aga tct ttt	1001
Val Val Arg Thr Arg Leu Arg Glu Glu Gly Thr Lys Tyr Arg Ser Phe	
249 254 259 264	
ttt cag act cta tct ttg ctt gtt caa gaa gaa ggt tat ggg tct ctt	1049
Phe Gln Thr Leu Ser Leu Leu Val Gln Glu Glu Gly Tyr Gly Ser Leu	
265 270 275 280	
tat cgt ggt ctg aca act cat cta gtg aga cag att cca aac aca gcc	1097
Tyr Arg Gly Leu Thr Thr His Leu Val Arg Gln Ile Pro Asn Thr Ala	
281 286 291 296	
att atg atg gcc acc tat gaa ttg gtg gtt tac cta ctc aat gga tag	1145
Ile Met Met Ala Thr Tyr Glu Leu Val Val Tyr Leu Leu Asn Gly *	
297 302 307 312	
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gtctccagtc cgggaccgaa gccgcctgcc gtagcgggcg gccagatccg cgtccccgct	180
cagcggccgg aggacatgcg ggagagaga atg agc cag agg gac acg ctg gtg Met Ser Gln Arg Asp Thr Leu Val 1 5	233
cat ctg ttt gcc gga gga tgt ggt ggt aca gtg gga gct att ctg aca His Leu Phe Ala Gly Gly Cys Gly Gly Thr Val Gly Ala Ile Leu Thr 9 14 19 24	281
tgt cca ctg gaa gtt gta aaa aca cga ctg cag tca tct tct gtg acg Cys Pro Leu Glu Val Val Lys Thr Arg Leu Gln Ser Ser Ser Val Thr 25 30 35 40	329
ctt tat att tct gaa gtt cag ctg aac acc atg gct gga gcc agt gtc Leu Tyr Ile Ser Glu Val Gln Leu Asn Thr Met Ala Gly Ala Ser Val 41 46 51 56	377
aac cga gta gtg tct ccc gga cct ctt cat tgc cta aaa gca ata tac Asn Arg Val Val Ser Pro Gly Pro Leu His Cys Leu Lys Ala Ile Tyr 57 62 67 72	425
ttt gct gct tat tca aac tgc aag gaa aag ttg aat gat gta ttt gat Phe Ala Ala Tyr Ser Asn Cys Lys Glu Lys Leu Asn Asp Val Phe Asp 73 78 83 88	473
cct gat tct acc caa gta cat atg att tca gct gca atg gca ggt ttt Pro Asp Ser Thr Gln Val His Met Ile Ser Ala Ala Met Ala Gly Phe 89 94 99 104	521
act gca atc aca gca acc aac ccc att tgg ctt ata aag act cgg tta Thr Ala Ile Thr Ala Thr Asn Pro Ile Trp Leu Ile Lys Thr Arg Leu 105 110 115 120	569
cag ctt gat gca agg aac cgc ggg gaa agg cga atg ggt gct ttt gaa Gln Leu Asp Ala Arg Asn Arg Gly Glu Arg Arg Met Gly Ala Phe Glu 121 126 131 136	617
tgt gtt cgt aaa gtg tat cag aca gat gga cta aaa gga ttt tat agg Cys Val Arg Lys Val Tyr Gln Thr Asp Gly Leu Lys Gly Phe Tyr Arg 137 142 147 152	665
ggc atg tct gct tca tat gct ggt ata tca gag act gtt atc cat ttt Gly Met Ser Ala Ser Tyr Ala Gly Ile Ser Glu Thr Val Ile His Phe 153 158 163 168	713
gtt att tat gaa agt ata aaa caa aaa cta ctg gaa tat aag act gct Val Ile Tyr Glu Ser Ile Lys Gln Lys Leu Leu Glu Tyr Lys Thr Ala 169 174 179 184	761
tct aca atg gaa aat gat gaa gag tct gtg aaa gaa gca tca gat ttt Ser Thr Met Glu Asn Asp Glu Glu Ser Val Lys Glu Ala Ser Asp Phe 185 190 195 200	809

gtg gga atg atg cta gct gct gcc acc tca aaa act tgt gcc aca act	857
Val Gly Met Met Leu Ala Ala Ala Thr Ser Lys Thr Cys Ala Thr Thr	
201 206 211 216	

ata gca tat cca cat gaa gtt gta aga aca aga cta cgt gaa gag gga	905
Ile Ala Tyr Pro His Glu Val Val Arg Thr Arg Leu Arg Glu Glu Gly	
217 222 227 232	

aca aaa tac aga tct ttt ttt cag act cta tct ttg ctt gtt caa gaa	953
Thr Lys Tyr Arg Ser Phe Phe Gln Thr Leu Ser Leu Leu Val Gln Glu	
233 238 243 248	

gaa ggt tat ggg tct ctt tat cgt ggt ctg aca act cat cta gtg aga	1001
Glu Gly Tyr Gly Ser Leu Tyr Arg Gly Leu Thr Thr His Leu Val Arg	
249 254 259 264	

cag att cca aac aca gcc att atg atg gcc acc tat gaa ttg gtg gtt	1049
Gln Ile Pro Asn Thr Ala Ile Met Met Ala Thr Tyr Glu Leu Val Val	
265 270 275 280	

tac cta ctc aat gga tag cagcac gaggactgct gtactgcaaa aaaagaagac	1103
Tyr Leu Leu Asn Gly *	
281 286	

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Gln Val Val Leu Gly His Leu Arg Gly Pro Ala Asp Ser Gly Trp Met	
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Pro Gln Ala Ala Pro Cys Leu Ser Gly Ala Pro Gln Ala Ser Ala Ala	
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Asp	Val	Val	Val	Val	His	Gly	Arg	Arg	Thr	Ala	Ile	Cys	Arg	Ala	Gly	
37					42					47					52	
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cgc	ggc	ggc	ttc	aag	gac	acc	acc	ccc	gac	gag	ctt	ctc	tcg	gca	gtc	305
Arg	Gly	Gly	Phe	Lys	Asp	Thr	Thr	Pro	Asp	Glu	Leu	Leu	Ser	Ala	Val	
53					58					63					68	
atg	acc	gcg	gtt	ctc	aag	gac	gtg	aat	ctg	agg	ccg	gaa	cag	ctg	ggg	353
Met	Thr	Ala	Val	Leu	Lys	Asp	Val	Asn	Leu	Arg	Pro	Glu	Gln	Leu	Gly	
69					74					79					84	
gac	atc	tgt	gtc	gga	aat	gtg	ctg	cag	cct	ggg	gcc	ggg	gca	atc	atg	401
Asp	Ile	Cys	Val	Gly	Asn	Val	Leu	Gln	Pro	Gly	Ala	Gly	Ala	Ile	Met	
85					90					95					100	
gcc	cga	atc	gcc	cag	ttt	ctg	agt	gac	atc	ccg	gag	act	gtg	cct	ttg	449
Ala	Arg	Ile	Ala	Gln	Phe	Leu	Ser	Asp	Ile	Pro	Glu	Thr	Val	Pro	Leu	
101					106					111					116	
tcc	act	gtc	aat	aga	cag	tgt	tcg	tcg	ggg	cta	cag	gca	gtg	gcc	agc	497
Ser	Thr	Val	Asn	Arg	Gln	Cys	Ser	Ser	Gly	Leu	Gln	Ala	Val	Ala	Ser	
117					122					127					132	
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Ile	Ala	Gly	Gly	Ile	Arg	Asn	Gly	Ser	Tyr	Asp	Ile	Gly	Met	Ala	Cys	
133					138					143					148	
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Gly	Val	Glu	Ser	Met	Ser	Leu	Ala	Asp	Arg	Gly	Asn	Pro	Gly	Asn	Ile	
149					154					159					164	
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Thr	Ser	Arg	Leu	Met	Glu	Lys	Glu	Lys	Ala	Arg	Asp	Cys	Leu	Ile	Pro	
165					170					175					180	
atg	ggg	ata	acc	tct	gag	aat	gtg	gct	gag	cgg	ttt	ggc	att	tca	cgg	689
Met	Gly	Ile	Thr	Ser	Glu	Asn	Val	Ala	Glu	Arg	Phe	Gly	Ile	Ser	Arg	
181					186					191					196	
gag	aag	cag	gat	acc	ttt	gcc	ctg	gct	tcc	cag	cag	aag	gca	gca	aga	737
Glu	Lys	Gln	Asp	Thr	Phe	Ala	Leu	Ala	Ser	Gln	Gln	Lys	Ala	Ala	Arg	
197					202					207					212	
gcc	cag	agc	aag	ggc	tgt	ttc	caa	gct	gag	att	gtg	cct	gtg	acc	acc	785
Ala	Gln	Ser	Lys	Gly	Cys	Phe	Gln	Ala	Glu	Ile	Val	Pro	Val	Thr	Thr	
213					218					223					228	
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Thr	Val	His	Asp	Asp	Lys	Gly	Thr	Lys	Arg	Ser	Ile	Thr	Val	Thr	Gln	
229					234					239					244	
gat	gag	ggg	atc	cgc	ccc	agc	acc	acc	atg	gag	ggc	ctg	gcc	aaa	ctg	881
Asp	Glu	Gly	Ile	Arg	Pro	Ser	Thr	Thr	Met	Glu	Gly	Leu	Ala	Lys	Leu	
245					250					255					260	
aag	cct	gcc	ttc	aag	aaa	gat	ggg	tct	acc	aca	gct	gga	aac	tct	agc	929

Lys Pro Ala Phe Lys Lys Asp Gly Ser Thr Thr Ala Gly Asn Ser Ser	
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Gln Val Ser Asp Gly Ala Ala Ala Ile Leu Leu Ala Arg Arg Ser Lys	
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Ala Glu Glu Leu Gly Leu Pro Ile Leu Gly Val Leu Arg Ser Tyr Ala	
293 298 303 308	
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Val Val Gly Val Pro Pro Asp Ile Met Gly Ile Gly Pro Ala Tyr Ala	
309 314 319 324	
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Ile Pro Val Ala Leu Gln Lys Ala Gly Leu Thr Val Ser Asp Val Asp	
325 330 335 340	
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Ile Phe Glu Ile Asn Glu Ala Phe Ala Ser Gln Ala Ala Tyr Cys Val	
341 346 351 356	
gag aag cta cga ctc ccc cct gag aag gtg aac ccc ctg ggg ggt gca	1217
Glu Lys Leu Arg Leu Pro Pro Glu Lys Val Asn Pro Leu Gly Gly Ala	
357 362 367 372	
gtg gcc tta ggg cac cca ctg ggc tgc act ggg gca cga cag gtc atc	1265
Val Ala Leu Gly His Pro Leu Gly Cys Thr Gly Ala Arg Gln Val Ile	
373 378 383 388	
acg ctg cca tcc tgc tgg ccc gga gtc caa ggc aga aga gtt ggg cct	1313
Thr Leu Pro Ser Cys Trp Pro Gly Val Gln Gly Arg Arg Val Gly Pro	
389 394 399 404	
tcc cat cct tgg ggt cct gag gtc tta tgc agt ggt tgg ggt ccc acc	1361
Ser His Pro Trp Gly Pro Glu Val Leu Cys Ser Gly Trp Gly Pro Thr	
405 410 415 420	
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* 421	
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Met Val Ser Leu Tyr Lys Tyr Ile Phe Pro Ala His Leu Asp Lys Ser	
349 354 359 364	
acc ctc gcg tgc att ggt ctc atc cag ccc cta ggt tcc att ttc cca	1272
Thr Leu Ala Cys Ile Gly Leu Ile Gln Pro Leu Gly Ser Ile Phe Pro	
365 370 375 380	
act gct gaa ctt caa gct cgt tgg gtg aca aga gtt ttc aaa ggc ttg	1320
Thr Ala Glu Leu Gln Ala Arg Trp Val Thr Arg Val Phe Lys Gly Leu	
381 386 391 396	
tgt agc ctg ccc tca gag aga act atg atg atg gac att atc aaa agg	1368
Cys Ser Leu Pro Ser Glu Arg Thr Met Met Met Asp Ile Ile Lys Arg	
397 402 407 412	
aat gaa aaa aga att gac ctg ttt gga gaa agc cag agc cag acg ttg	1416
Asn Glu Lys Arg Ile Asp Leu Phe Gly Glu Ser Gln Ser Gln Thr Leu	
413 418 423 428	
cag acc aat tat gtt gac tac ttg gac gag ctc gcc tta gag ata ggt	1464
Gln Thr Asn Tyr Val Asp Tyr Leu Asp Glu Leu Ala Leu Glu Ile Gly	
429 434 439 444	
gcg aag cca gat ttc tgc tct ctc ttg ttc aaa gat cct aaa ctg gct	1512
Ala Lys Pro Asp Phe Cys Ser Leu Leu Phe Lys Asp Pro Lys Leu Ala	
445 450 455 460	
gtg aga ctc tat ttc gga ccc tgc aac tcc tat tag tacc gcctgggttg	1562
Val Arg Leu Tyr Phe Gly Pro Cys Asn Ser Tyr *	
461 466 471	
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gccactcaag actcgggccc tgaaggattc atctaatttc tcagtttctt ttctgttgaa	1682
aatcctgggc cttcttgctg ttgttggtgc ctttttttgc caacttcaat ggctcctagtc	1742
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ggctaaaaaa aaaaacatta cattcatgtt ctaattataa attttaaagt taggtactac	1862
aggcaggggg gaaattgtaa agaattagca aaattaggct tatgtacaaa accaaaattt	1922
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agcggagaag aaagcgctcc gaagagctag agctgacact cggcgatgag ctaagacgct	180
gtttcagagc gtttgggtcc tctgaggccc cttgaccagg agtgtctctg aagatacagt	240
ccaaagaaag ttctccaaaa caaggagagc agtctgaagc tggggg atg gca aca	294
	Met Ala Thr
	1
gca ttg gtg agt gcc cat tcc ctg gct ccc ctg aat ctg aag aag gag	342
Ala Leu Val Ser Ala His Ser Leu Ala Pro Leu Asn Leu Lys Lys Glu	
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Gly Leu Arg Val Val Arg Glu Asp His Tyr Ser Thr Trp Glu Gln Gly	
20 25 30 35	
ttc aag ctg caa gga aac agt aaa ggc ctt gga cag gag cca ttg tgc	438
Phe Lys Leu Gln Gly Asn Ser Lys Gly Leu Gly Gln Glu Pro Leu Cys	
36 41 46 51	
aaa caa ttc agg cag ttg cgt tat gaa gag acc aca gga cct cga gaa	486
Lys Gln Phe Arg Gln Leu Arg Tyr Glu Glu Thr Thr Gly Pro Arg Glu	
52 57 62 67	
gca cta agt cgg ctc cgg gag ctc tgt caa cag tgg cta cag ccc gag	534
Ala Leu Ser Arg Leu Arg Glu Leu Cys Gln Gln Trp Leu Gln Pro Glu	
68 73 78 83	
acc cat acc aag gag cag atc ctg gag ctg ctg gtg ctg gag cag ttt	582
Thr His Thr Lys Glu Gln Ile Leu Glu Leu Leu Val Leu Glu Gln Phe	
84 89 94 99	
ctg atc atc ctg cct aag gag ctc cag gcc cgg gtg cag gag cat cac	630
Leu Ile Ile Leu Pro Lys Glu Leu Gln Ala Arg Val Gln Glu His His	
100 105 110 115	
cca gag agc agg gag gac gtg gtt gtt gtt ctg gag gat ttg cag ctg	678
Pro Glu Ser Arg Glu Asp Val Val Val Val Leu Glu Asp Leu Gln Leu	
116 121 126 131	
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Asp Leu Gly Glu Thr Gly Gln Gln Val Asp Pro Asp Gln Pro Lys Lys	
132 137 142 147	
caa aaa ata ctt gtg gag gag atg gcc cct ctg aaa gga gta cag gaa	774
Gln Lys Ile Leu Val Glu Glu Met Ala Pro Leu Lys Gly Val Gln Glu	
148 153 158 163	
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Gln Gln Val Arg His Glu Cys Glu Val Thr Lys Pro Glu Lys Glu Lys	

164	169	174	179	
ggt gag gag aca agg att gag aat ggg aag ctt att gta gta aca gac				870
Gly Glu Glu Thr Arg Ile Glu Asn Gly Lys Leu Ile Val Val Thr Asp				
180	185	190	195	
tct tgt gga aga gta gag tca tct ggg aaa ata tct gaa ccc atg gag				918
Ser Cys Gly Arg Val Glu Ser Ser Gly Lys Ile Ser Glu Pro Met Glu				
196	201	206	211	
gct cat aat gag ggc tct aac ttg gaa agg cat cag gcc aag ccc aaa				966
Ala His Asn Glu Gly Ser Asn Leu Glu Arg His Gln Ala Lys Pro Lys				
212	217	222	227	
gag aag att gag tat aaa tgc tca gaa cgt gag cag aga ttc atc cag				1014
Glu Lys Ile Glu Tyr Lys Cys Ser Glu Arg Glu Gln Arg Phe Ile Gln				
228	233	238	243	
cac ttg gac ctg att gaa cat gcg agt aca cac acg gga aag aaa tcc				1062
His Leu Asp Leu Ile Glu His Ala Ser Thr His Thr Gly Lys Lys Ser				
244	249	254	259	
tgc gag tct gat gtg tgt cag agt tcc agt ctt aca gga cat aag aaa				1110
Cys Glu Ser Asp Val Cys Gln Ser Ser Ser Leu Thr Gly His Lys Lys				
260	265	270	275	
gtc ctc tct aga gag aaa ggt cat cag tgt cat gag tgt ggg aaa gcc				1158
Val Leu Ser Arg Glu Lys Gly His Gln Cys His Glu Cys Gly Lys Ala				
276	281	286	291	
ttt cag agg agt tca cac ctc gtc aga cat cag aaa atc cat ctt ggt				1206
Phe Gln Arg Ser Ser His Leu Val Arg His Gln Lys Ile His Leu Gly				
292	297	302	307	
gag aag cct tat cag tgc aat gag tgt ggc aaa gtc ttt agc cag aat				1254
Glu Lys Pro Tyr Gln Cys Asn Glu Cys Gly Lys Val Phe Ser Gln Asn				
308	313	318	323	
gca ggc ctt ttg gaa cat ctc aga att cat act gga gag aaa cct tat				1302
Ala Gly Leu Leu Glu His Leu Arg Ile His Thr Gly Glu Lys Pro Tyr				
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cta tgt atc cat tgt gga aaa aat ttt agg cgc agc tct cac ctt aat				1350
Leu Cys Ile His Cys Gly Lys Asn Phe Arg Arg Ser Ser His Leu Asn				
340	345	350	355	
cga cat cag aga att cac agt cag gag gag ccc tgt gag tgc aag gag				1398
Arg His Gln Arg Ile His Ser Gln Glu Glu Pro Cys Glu Cys Lys Glu				
356	361	366	371	
tgt gga aaa acc ttt agt cag gcc tta ctc ctc acc cac cat cag aga				1446
Cys Gly Lys Thr Phe Ser Gln Ala Leu Leu Leu Thr His His Gln Arg				
372	377	382	387	
atc cat agt cac tcc aaa agc cat caa tgt aac gag tgt gga aaa gct				1494
Ile His Ser His Ser Lys Ser His Gln Cys Asn Glu Cys Gly Lys Ala				
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 <222> (110)..(2812)

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 Met Arg
 1

ctg ttc gtg agt gat ggc gtc ccg ggt tgc ttg ccg gtg ctg gcc gcc 163
 Leu Phe Val Ser Asp Gly Val Pro Gly Cys Leu Pro Val Leu Ala Ala
 3 8 13 18

gcc ggg aga gcc cgg ggc aga gca gag gtg ctc atc agc act gta ggc 211
 Ala Gly Arg Ala Arg Gly Arg Ala Glu Val Leu Ile Ser Thr Val Gly
 19 24 29 34

ccg gaa gat tgt gtg gtc ccg ttc ctg acc cgg cct aag gtc cct gtc 259
 Pro Glu Asp Cys Val Val Pro Phe Leu Thr Arg Pro Lys Val Pro Val
 35 40 45 50

ttg cag ctg gat agc ggc aac tac ctc ttc tcc act agt gca atc tgc 307
 Leu Gln Leu Asp Ser Gly Asn Tyr Leu Phe Ser Thr Ser Ala Ile Cys
 51 56 61 66

cga tat ttt ttt ttg tta tct ggc tgg gag caa gat gac ctc act aac 355
 Arg Tyr Phe Phe Leu Leu Ser Gly Trp Glu Gln Asp Asp Leu Thr Asn
 67 72 77 82

cag tgg ctg gaa tgg gaa gcg aca gag ctg cag cca gct ttg tct gct 403
 Gln Trp Leu Glu Trp Glu Ala Thr Glu Leu Gln Pro Ala Leu Ser Ala
 83 88 93 98

gcc ctg tac tat tta gtg gtc caa ggc aag aag ggg gaa gat gtt ctt 451
 Ala Leu Tyr Tyr Leu Val Val Gln Gly Lys Lys Gly Glu Asp Val Leu
 99 104 109 114

ggg tca gtg cgg aga gcc ctg act cac att gac cac agc ttg agt cgt 499
 Gly Ser Val Arg Arg Ala Leu Thr His Ile Asp His Ser Leu Ser Arg
 115 120 125 130

cag aac tgt cct ttc ctg gct ggg gag aca gaa tct cta gcc gac att 547
 Gln Asn Cys Pro Phe Leu Ala Gly Glu Thr Glu Ser Leu Ala Asp Ile
 131 136 141 146

gtt ttg tgg gga gcc cta tac cca tta ctg caa gat ccc gcc tac ctc	595
Val Leu Trp Gly Ala Leu Tyr Pro Leu Leu Gln Asp Pro Ala Tyr Leu	
147 152 157 162	
cct gag gag ctg agt gcc ctg cac agc tgg ttc cag aca ctg agt acc	643
Pro Glu Glu Leu Ser Ala Leu His Ser Trp Phe Gln Thr Leu Ser Thr	
163 168 173 178	
cag gaa cca tgt cag cga gct gca gag act gta ctg aaa cag caa ggt	691
Gln Glu Pro Cys Gln Arg Ala Ala Glu Thr Val Leu Lys Gln Gln Gly	
179 184 189 194	
gtc ctg gct ctc cgg cct tac ctc caa aag cag ccc cag ccc agc ccc	739
Val Leu Ala Leu Arg Pro Tyr Leu Gln Lys Gln Pro Gln Pro Ser Pro	
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gct gag gga agg gct gtc acc aat gag cct gag gag gag gag ctg gct	787
Ala Glu Gly Arg Ala Val Thr Asn Glu Pro Glu Glu Glu Glu Leu Ala	
211 216 221 226	
acc cta tct gag gag gag att gct atg gct gtt act gct tgg gag aag	835
Thr Leu Ser Glu Glu Glu Ile Ala Met Ala Val Thr Ala Trp Glu Lys	
227 232 237 242	
ggc cta gaa agt ttg ccc ccg ctg cgg ccc cag cag aat cca gtg ttg	883
Gly Leu Glu Ser Leu Pro Pro Leu Arg Pro Gln Gln Asn Pro Val Leu	
243 248 253 258	
cct gtg gct gga gaa agg aat gtg ctc atc acc agt gcc ctc cct tac	931
Pro Val Ala Gly Glu Arg Asn Val Leu Ile Thr Ser Ala Leu Pro Tyr	
259 264 269 274	
gtc aac aat gtc ccc cac ctt ggg aac atc att ggt tgt gtg ctc agt	979
Val Asn Asn Val Pro His Leu Gly Asn Ile Ile Gly Cys Val Leu Ser	
275 280 285 290	
gcc gat gtc ttt gcc agg tac tct cgc ctc cgc cag tgg aac acc ctc	1027
Ala Asp Val Phe Ala Arg Tyr Ser Arg Leu Arg Gln Trp Asn Thr Leu	
291 296 301 306	
tat ctg tgt ggg aca gat gag tat ggt aca gca aca gag acc aag gct	1075
Tyr Leu Cys Gly Thr Asp Glu Tyr Gly Thr Ala Thr Glu Thr Lys Ala	
307 312 317 322	
ctg gag gag gga cta acc ccc cag gag atc tgc gac aag tac cac atc	1123
Leu Glu Glu Gly Leu Thr Pro Gln Glu Ile Cys Asp Lys Tyr His Ile	
323 328 333 338	
atc cat gct gac atc tac cgc tgg ttt aac att tcg ttt gat att ttt	1171
Ile His Ala Asp Ile Tyr Arg Trp Phe Asn Ile Ser Phe Asp Ile Phe	
339 344 349 354	
ggc cgc acc acc act cca cag cag acc aaa atc acc cag gac att ttc	1219
Gly Arg Thr Thr Thr Pro Gln Gln Thr Lys Ile Thr Gln Asp Ile Phe	
355 360 365 370	
cag cag ttg ctg aaa cga ggt ttt gtg ctg caa gat act gtg gag caa	1267

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371					376					381					386

ctg	cga	tgt	gag	cac	tgt	gct	cgc	ttc	ctg	gct	gac	cgc	ttc	gtg	gag	1315
Leu	Arg	Cys	Glu	His	Cys	Ala	Arg	Phe	Leu	Ala	Asp	Arg	Phe	Val	Glu	
387					392					397					402	

ggc	gtg	tgt	ccc	ttc	tgt	ggc	tat	gag	gag	gct	cgg	ggt	gac	cag	tgt	1363
Gly	Val	Cys	Pro	Phe	Cys	Gly	Tyr	Glu	Glu	Ala	Arg	Gly	Asp	Gln	Cys	
403					408					413					418	

gac	aag	tgt	ggc	aag	ctc	atc	aat	gct	gtc	gag	ctt	aag	aag	cct	cag	1411
Asp	Lys	Cys	Gly	Lys	Leu	Ile	Asn	Ala	Val	Glu	Leu	Lys	Lys	Pro	Gln	
419					424					429					434	

tgt	aaa	gtc	tgc	cga	tca	tgc	cct	gtg	gtg	cag	tcg	agc	cag	cac	ctg	1459
Cys	Lys	Val	Cys	Arg	Ser	Cys	Pro	Val	Val	Gln	Ser	Ser	Gln	His	Leu	
435					440					445					450	

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Phe	Leu	Asp	Leu	Pro	Lys	Leu	Glu	Lys	Arg	Leu	Glu	Glu	Trp	Leu	Gly	
451					456					461					466	

agg	aca	ttg	cct	ggc	agt	gac	tgg	aca	ccc	aat	gcc	cag	ttt	atc	acc	1555
Arg	Thr	Leu	Pro	Gly	Ser	Asp	Trp	Thr	Pro	Asn	Ala	Gln	Phe	Ile	Thr	
467					472					477					482	

cgt	tct	tgg	ctt	cgg	gat	ggc	ctc	aag	cca	cgc	tgc	ata	acc	cga	gac	1603
Arg	Ser	Trp	Leu	Arg	Asp	Gly	Leu	Lys	Pro	Arg	Cys	Ile	Thr	Arg	Asp	
483					488					493					498	

ctc	aaa	tgg	gga	acc	cct	gta	ccc	tta	gaa	ggt	ttt	gaa	gac	aag	gta	1651
Leu	Lys	Trp	Gly	Thr	Pro	Val	Pro	Leu	Glu	Gly	Phe	Glu	Asp	Lys	Val	
499					504					509					514	

ttc	tat	gtc	tgg	ttt	gat	gcc	act	att	ggc	tat	ctg	tcc	atc	aca	gcc	1699
Phe	Tyr	Val	Trp	Phe	Asp	Ala	Thr	Ile	Gly	Tyr	Leu	Ser	Ile	Thr	Ala	
515					520					525					530	

aac	tac	aca	gac	cag	tgg	gag	aga	tgg	tgg	aag	aac	cca	gag	caa	gtg	1747
Asn	Tyr	Thr	Asp	Gln	Trp	Glu	Arg	Trp	Trp	Lys	Asn	Pro	Glu	Gln	Val	
531					536					541					546	

gac	ctg	tat	cag	ttc	atg	gcc	aaa	gac	aat	gtt	cct	ttc	cat	agc	tta	1795
Asp	Leu	Tyr	Gln	Phe	Met	Ala	Lys	Asp	Asn	Val	Pro	Phe	His	Ser	Leu	
547					552					557					562	

gtc	ttt	cct	tgc	tca	gcc	cta	gga	gct	gag	gat	aac	tat	acc	ttg	gtc	1843
Val	Phe	Pro	Cys	Ser	Ala	Leu	Gly	Ala	Glu	Asp	Asn	Tyr	Thr	Leu	Val	
563					568					573					578	

agc	cac	ctc	att	gct	aca	gag	tac	ctg	aac	tat	gag	gat	ggg	aaa	ttc	1891
Ser	His	Leu	Ile	Ala	Thr	Glu	Tyr	Leu	Asn	Tyr	Glu	Asp	Gly	Lys	Phe	
579					584					589					594	

tct	aag	agc	cgc	ggt	gtg	gga	gtg	ttt	ggg	gac	atg	gcc	cag	gac	acg	1939
Ser	Lys	Ser	Arg	Gly	Val	Gly	Val	Phe	Gly	Asp	Met	Ala	Gln	Asp	Thr	

595	600	605	610	
ggg atc cct gct gac	atc tgg cgc ttc tat	ctg ctg tac att cgg cct		1987
Gly Ile Pro Ala Asp	Ile Trp Arg Phe Tyr	Leu Leu Tyr Ile Arg Pro		
611	616	621	626	
gag ggc cag gac agt	gct ttc tcc tgg acg	gac ctg ctg ctg aag aat		2035
Glu Gly Gln Asp Ser	Ala Phe Ser Trp Thr	Asp Leu Leu Leu Lys Asn		
627	632	637	642	
aat tct gag ctg ctt	aac aac ctg ggc aac	ttc atc aac aga gct ggg		2083
Asn Ser Glu Leu Leu	Asn Asn Leu Gly Asn	Phe Ile Asn Arg Ala Gly		
643	648	653	658	
atg ttt gtg tct aag	ttc ttt ggg ggc tat	gtg cct gag atg gtg ctc		2131
Met Phe Val Ser Lys	Phe Phe Gly Gly Tyr	Val Pro Glu Met Val Leu		
659	664	669	674	
acc cct gat gat cag	cgc ctg ctg gcc cat	gtc acc ctg gag ctc cag		2179
Thr Pro Asp Asp Gln	Arg Leu Leu Ala His	Val Thr Leu Glu Leu Gln		
675	680	685	690	
cac tat cac cag cta	ctt gag aag gtt cgg	atc cgg gat gcc ttg cgc		2227
His Tyr His Gln Leu	Leu Glu Lys Val Arg	Ile Arg Asp Ala Leu Arg		
691	696	701	706	
agt atc ctc acc ata	tct cga cat ggc aac	caa tat att cag gtg aat		2275
Ser Ile Leu Thr Ile	Ser Arg His Gly Asn	Gln Tyr Ile Gln Val Asn		
707	712	717	722	
gag ccc tgg aag cgg	att aaa ggc agt gag	gct gac agg caa cgg gca		2323
Glu Pro Trp Lys Arg	Ile Lys Gly Ser Glu	Ala Asp Arg Gln Arg Ala		
723	728	733	738	
gga aca gtg act ggc	ttg gca gtg aat ata	gct gcc ttg ctc tct gtc		2371
Gly Thr Val Thr Gly	Leu Ala Val Asn Ile	Ala Ala Leu Leu Ser Val		
739	744	749	754	
atg ctt cag cct tac	atg ccc acg gtt agt	gcc aca atc cag gcc cag		2419
Met Leu Gln Pro Tyr	Met Pro Thr Val Ser	Ala Thr Ile Gln Ala Gln		
755	760	765	770	
ctg cag ctc cca cct	cca gcc tgc agt atc	ctg ctg aca aac ttc ctg		2467
Leu Gln Leu Pro Pro	Pro Ala Cys Ser Ile	Leu Leu Thr Asn Phe Leu		
771	776	781	786	
tgt acc tta cca gca	gga cac cag att ggc	aca gtc agt ccc ttg ttc		2515
Cys Thr Leu Pro Ala	Gly His Gln Ile Gly	Thr Val Ser Pro Leu Phe		
787	792	797	802	
caa aaa ttg gaa aat	gac cag att gaa agt	tta agg cag cgc ttt gga		2563
Gln Lys Leu Glu Asn	Asp Gln Ile Glu Ser	Leu Arg Gln Arg Phe Gly		
803	808	813	818	
ggg ggc cag gca aaa	acg tcc ctg aag cca	gca gtt gta gag act gtt		2611
Gly Gly Gln Ala Lys	Thr Ser Leu Lys Pro	Ala Val Val Glu Thr Val		
819	824	829	834	

aca aca gcc aag cca cag cag ata caa gcg ctg atg gat gaa gtg aca	2659
Thr Thr Ala Lys Pro Gln Gln Ile Gln Ala Leu Met Asp Glu Val Thr	
835 840 845 850	/
aaa caa gga aac att gtc cga gaa ctg aaa gca caa aag gca gac aag	2707
Lys Gln Gly Asn Ile Val Arg Glu Leu Lys Ala Gln Lys Ala Asp Lys	
851 856 861 866	
aac gag gtt gct gcg gag gtg gcg aaa ctc ttg gat cta aag aaa cag	2755
Asn Glu Val Ala Ala Glu Val Ala Lys Leu Leu Asp Leu Lys Lys Gln	
867 872 877 882	
ttg gct gta gct gag ggg aaa ccc cct gaa gcc cct aaa ggc aag aag	2803
Leu Ala Val Ala Glu Gly Lys Pro Pro Glu Ala Pro Lys Gly Lys Lys	
883 888 893 898	
aaa aag taa aagacct tggctcatag aaagtcactt taatagatag ggacagtaat	2859
Lys Lys *	
899	

aaataaatgt acaatctcta tatacaagct gagacctttc cttttgtcta ctccaagcct	2919
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agccacttct gggaaagggtg ggtagtgtgg cccaagtggg ggactgatgc tccaagtcg	3039
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cccacgcgtc cgccggttcc ggttgcatca gcgagggatt cacggcgaa	115
	atg aga
	Met Arg
	1
ctg ttc gtg agt gat ggc gtc ccg ggt tgc ttg ccg gtg ctg gcc gcc	163
Leu Phe Val Ser Asp Gly Val Pro Gly Cys Leu Pro Val Leu Ala Ala	
3 8 13 18	
gcc ggg aga gcc cgg ggc aga gca gag gtg ctc atc agc act gta ggc	211
Ala Gly Arg Ala Arg Gly Arg Ala Glu Val Leu Ile Ser Thr Val Gly	
19 24 29 34	

ccg gaa gat tgt gtg gtc ccg ttc ctg acc cgg cct aag gtc cct gtc	259
Pro Glu Asp Cys Val Val Pro Phe Leu Thr Arg Pro Lys Val Pro Val	
35 40 45 50	
ttg cag ctg gat agc ggc aac tac ctc ttc tcc act agt gca atc tgc	307
Leu Gln Leu Asp Ser Gly Asn Tyr Leu Phe Ser Thr Ser Ala Ile Cys	
51 56 61 66	
cga tat ttt ttt ttg tta tct ggc tgg gag caa gat gac ctc act aac	355
Arg Tyr Phe Phe Leu Leu Ser Gly Trp Glu Gln Asp Asp Leu Thr Asn	
67 72 77 82	
cag tgg ctg gaa tgg gaa gcg aca gag ctg cag cca gct ttg tct gct	403
Gln Trp Leu Glu Trp Glu Ala Thr Glu Leu Gln Pro Ala Leu Ser Ala	
83 88 93 98	
gcc ctg tac tat tta gtg gtc caa ggc aag aag ggg gaa gat gtt ctt	451
Ala Leu Tyr Tyr Leu Val Val Gln Gly Lys Lys Gly Glu Asp Val Leu	
99 104 109 114	
ggt tca gtg cgg aga gcc ctg act cac att gac cac agc ttg agt cgt	499
Gly Ser Val Arg Arg Ala Leu Thr His Ile Asp His Ser Leu Ser Arg	
115 120 125 130	
cag aac tgt cct ttc ctg gct ggg gag gag ctg agt gcc ctg cac agc	547
Gln Asn Cys Pro Phe Leu Ala Gly Glu Glu Leu Ser Ala Leu His Ser	
131 136 141 146	
tgg ttc cag aca ctg agt acc cag gaa cca tgt cag cga gct gca gag	595
Trp Phe Gln Thr Leu Ser Thr Gln Glu Pro Cys Gln Arg Ala Ala Glu	
147 152 157 162	
act gta ctg aaa cag caa ggt gtc ctg gct ctc cgg cct tac ctc caa	643
Thr Val Leu Lys Gln Gln Gly Val Leu Ala Leu Arg Pro Tyr Leu Gln	
163 168 173 178	
aag cag ccc cag ccc agc ccc gct gag gga agg gct gtc acc aat gag	691
Lys Gln Pro Gln Pro Ser Pro Ala Glu Gly Arg Ala Val Thr Asn Glu	
179 184 189 194	
cct gag gag gag gag ctg gct acc cta tct gag gag gag att gct atg	739
Pro Glu Glu Glu Glu Leu Ala Thr Leu Ser Glu Glu Glu Ile Ala Met	
195 200 205 210	
gct gtt act gct tgg gag aag ggc cta gaa agt ttg ccc ccg ctg cgg	787
Ala Val Thr Ala Trp Glu Lys Gly Leu Glu Ser Leu Pro Pro Leu Arg	
211 216 221 226	
ccc cag cag aat cca gtg ttg cct gtg gct gga gaa agg aat gtg ctc	835
Pro Gln Gln Asn Pro Val Leu Pro Val Ala Gly Glu Arg Asn Val Leu	
227 232 237 242	
atc acc agt gcc ctc cct tac gtc aac aat gtc ccc cac ctt ggg aac	883
Ile Thr Ser Ala Leu Pro Tyr Val Asn Asn Val Pro His Leu Gly Asn	
243 248 253 258	

atc att ggt tgt gtg ctc agt gcc gat gtc ttt gcc agg tac tct cgc	931
Ile Ile Gly Cys Val Leu Ser Ala Asp Val Phe Ala Arg Tyr Ser Arg	
259 264 269 274	
ctc cgc cag tgg aac acc ctc tat ctg tgt ggg aca gat gag tat ggt	979
Leu Arg Gln Trp Asn Thr Leu Tyr Leu Cys Gly Thr Asp Glu Tyr Gly	
275 280 285 290	
aca gca aca gag acc aag gct ctg gag gag gga cta acc ccc cag gag	1027
Thr Ala Thr Glu Thr Lys Ala Leu Glu Glu Gly Leu Thr Pro Gln Glu	
291 296 301 306	
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Ile Cys Asp Lys Tyr His Ile Ile His Ala Asp Ile Tyr Arg Trp Phe	
307 312 317 322	
aac att tcg ttt gat att ttt ggt cgc acc acc act cca cag cag acc	1123
Asn Ile Ser Phe Asp Ile Phe Gly Arg Thr Thr Thr Pro Gln Gln Thr	
323 328 333 338	
aaa atc acc cag gac att ttc cag cag ttg ctg aaa cga ggt ttt gtg	1171
Lys Ile Thr Gln Asp Ile Phe Gln Gln Leu Leu Lys Arg Gly Phe Val	
339 344 349 354	
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355 360 365 370	
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Leu Ala Asp Arg Phe Val Glu Gly Val Cys Pro Phe Cys Gly Tyr Glu	
371 376 381 386	
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Glu Ala Arg Gly Asp Gln Cys Asp Lys Cys Gly Lys Leu Ile Asn Ala	
387 392 397 402	
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Val Glu Leu Lys Lys Pro Gln Cys Lys Val Cys Arg Ser Cys Pro Val	
403 408 413 418	
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Val Gln Ser Ser Gln His Leu Phe Leu Asp Leu Pro Lys Leu Glu Lys	
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Arg Leu Glu Glu Trp Leu Gly Arg Thr Leu Pro Gly Ser Asp Trp Thr	
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Pro Asn Ala Gln Phe Ile Thr Arg Ser Trp Leu Arg Asp Gly Leu Lys	
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Pro Arg Cys Ile Thr Arg Asp Leu Lys Trp Gly Thr Pro Val Pro Leu	
467 472 477 482	
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Glu Gly Phe Glu Asp Lys Val Phe Tyr Val Trp Phe Asp Ala Thr Ile
 483 488 493 498

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 499 504 509 514

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 547 552 557 562

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 Tyr Val Pro Glu Met Val Leu Thr Pro Asp Asp Gln Arg Leu Leu Ala
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cat gtc acc ctg gag ctc cag cac tat cac cag cta ctt gag aag gtt 2131
 His Val Thr Leu Glu Leu Gln His Tyr His Gln Leu Leu Glu Lys Val
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